The Hughlings Jackson Lecture

ON THE

RELATIONS OF DIFFERENT DIVISIONS OF THE CENTRAL NERVOUS SYSTEM TO ONE ANOTHER AND TO PARTS OF THE BODY.

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[AFTER expressing his inability to properly thank the Society for asking him to deliver this the first Hughlings Jackson Lecture, Dr. Hughlings Jackson said:—]

It is an excellent thing, for clinical purposes, to study nervous maladies by type. This, it seems to me, is the plan adopted in books on the practice of medicine; an account is, for example, given of the malady, tabes; its complications are mentioned and abortive forms are described; a description of the malady, as, in different cases, it approaches or reaches or deviates from a type is given. There are other ways of studying nervous maladies, for example, as they are Dissolutions, that is, as they are reversals of Evolution of this or that part of the nervous system, that is, as they are departures from normal states. In these investigations we do not abandon clinical work; we must study nervous maladies by type first of all. One advantage of considering nervous maladies as dissolutions is, that in doing so we are obliged in each case to deal with the diseased part as a flaw in the whole nervous system; we thus have to take into account the undamaged remainder and the evolution still going on in it. Apart from these applications of the doctrines of evolution and dissolution I would urge, as I have often done, that a great part of symptomatologies in nervous maladies with negative lesions is the outcome of activities of undamaged, healthy, structures—that that part is a problem, not in pathology, but in physiology; I have illustrated this in several ways in THE LANCET of Dec. 12th, 1896. We can attempt a study of some very different nervous maladies by comparing and contrasting them as they are owing to disease of Evolutionary Levels of different grades of the central nervous system. For example, I make the hypothesis that progressive muscular atrophy, paralysis agitans and general paralysis are owing to disease of, but not limited to, motor centres of, respectively, the lowest, middle and highest levels of the Cerebral Sub-system. With reference to what I said a moment ago I here remark that whilst I suppose that the negative lesion (which is produced by a pathological process) of the middle motor centres in paralysis agitans, answers to the paralysis I suppose that the tremor and rigidity are owing to over-action, hyper-physiological state, of perfectly healthy centres, anterior horns and perhaps of the cerebellum also.

There are certain Complementary Inverses (cerebral and cerebellar) worthy of consideration; these will be considered later in a little detail. One profitable way of studying nervous maladies is by comparing and contrasting the effects of a destruction-lesion with those of a discharge-lesion of the same centre or region; for example, the commonest variety of epileptiform seizures (the kind of epilepsy described by Bravais, 1827) is to a great extent the mobile counterpart of the commonest variety of hemiplegia. We have, however, in making such comparisons and contrasts to bear well in mind that there are greater positive effects from a discharge-lesion (because discharges spread) than there are negative effects from a destruction-lesion; hence the qualifying words "to a great extent." We can compare and contrast the after-effects (temporary functionlessness of nervous elements) of sudden and excessive discharges (those of discharge-lesions) with the effects of destruction-lesions. There is. I suggest, a variety of so-called idiopathic epilepsy, in which there is a discharge-lesion of, or of some elements of the auditory centre of Ferrier, *destruction* of which centre in the left half of the brain would produce the particular Imperception called Word-deafness (first described by Dr. Charlton Bastian); the discharge, however, only *begins* in this centre (primary discharge) and spreads from it to associated centres (secondary discharges). *After* the attack there is, I presume, exhaustion, temporary, of more or fewer of the elements discharged in the paroxysm; then there is, not only Word-deafness, but also another particular Imperception, Word-blindness; in a case I have recorded[1] there was inability to speak too; all the symptoms were temporary. So presumably the effects of discharge beginning in the centre alluded to and certainly the after-effects of that discharge when it has been widespread, are greater than the effects of destruction of the centre would be. This leads me to a further remark on methods of study. I do not think we analyse the symptomatologies of epileptic fits with sufficient thoroughness; as Féré has well said, there are as many epilepsies as there are epileptics In a minor attack of epilepsy there may be smacking movements of the tongue and lips, the "epigastric aura," the so-called intellectual aura, which I prefer to call "dreamy state," defect of consciousness passing into unconsciousness, and slight convulsion; and after the fit there may be loss of consciousness with elaborate actions. I believe that in some cases, as in so-called procursive epilepsy, the two stages—that of the fit proper and the post-paroxysmal state—are not always distinguished. No analysis of the symptomatologies of such paroxysms as the minor attack mentioned is on a thorough basis which does not distinguish the psychical from the physical, which does not take heed of the vast differences in complexity, &c., of crude sensations, such as the "epigastric aura," and such elaborate psychical states as the "dreamy state" (for example, the exceedingly elaborate state, a "feeling of being somewhere else"), which does not distinguish real movements, for example, smacking of the lips as if tasting, from convulsion of small parts of the body, turning up of the eyes, for example. There is another kind of study. We have to try to show how it is that two such sets of phenomena as universal convulsion with cessation of consciousness (in a severe fit of so-called idiopathic epilepsy) and insanity with in some cases profuse and elaborate mentation—how both these exceedingly different symptomatologies result from disease of, or disease beginning in, the "mental centres"; it is not enough to study each of the maladies in isolation, all the more because often enough we find the two occurring in one patient; there may be a paroxysm of universal convulsion with cessation of consciousness and then the insanity loss of consciousness and mania or that greater degree of insanity, post epileptic coma. This leads me to say that we do not always take into account in our studies of post-epileptic states all the degrees of insanity which are found after different degrees of epileptic fits. Thus, post-epileptic coma is not thought of, as it should be, as a post-epileptic insanity, as a greater degree of insanity, one signifying a greater depth of Dissolution of the highest level, then post-epileptic mania; post-epileptic coma is acute temporary dementia, is so, I mean, so far as the highest level is concerned.

For the kinds of work indicated some scheme of the whole nervous system is necessary. A morphological seriation, such as spinal cord and encephalon, or such as cord, medulla, pons, cerebellum and cerebral hemispheres, will not serve us. We must have a scheme according to degrees of directness and complexity with which nervous centres, or as I shall say, Levels, represent impressions and movements of parts of the body; this is an anatomical, not merely a morphological, scheme.

I divide the central nervous system into two Sub-systems—Cerebral and Cerebellar. The two have what I call the Lowest Level in common, or in other words this level is the lowest of the cerebral sub-system and also of the cerebellar sub-system.

The Lowest Level extends, it is suggested, from the tuber cinereum to the conus medullaris; it is made up of an homologous series of sensory and motor centres lying in the cord, medulla, pons, and aqueduct, with the fibres inter-connecting them. These centres represent the body in detail, motorily,

[1] Cerebral Paroxysms (epileptic attacks) with an Auditory Warning; in slight seizures the special Imperception called "Word-Deafness (Wernicke) and "Word-Blindness" (Kussmaul); Inability to Speak; Spectral Words (auditory and visual). THE LANCET, Aug. 4th, 1894.

from ocular muscles (ciliary muscle?) to muscles of the perineum (sphincter ani?). There are also, besides higher Levels, Superior centres of the lowest level itself; for example, there is the respiratory, medulla, centre which, to speak of motor elements alone, represents the muscles of the respiratory apparatus indirectly—represents movements of them by intermediation of the laryngeal, phrenic and costal motor centres, centres of the homologous series of the level. There are, I suppose, other Superior centres with their subordinate centres for intestinal action, defecation, micturition, the sexual act, parturition, &c. The homologous series of centres with the superior centres and the fibres inter-connecting them are what will be called Intrinsic elements of the level.

The Rolandic region of the cortex cerebri and the pre-frontal lobe (region in front of the pre-central sulcus) are the motor provinces of, respectively, the middle and highest levels of the cerebral sub-system. Now as to the sensory provinces of these higher levels; I have formerly spoken of the occipital lobes as the highest sensory centres of the cerebral sub-system, but I am now unable to say with confidence what parts of the cerebral hemispheres are the sensory provinces of the middle and highest levels of the cerebral sub-system. In what follows it is to be understood that the unit of constitution of the whole nervous system is sensori-motor, and also that the so-called motor provinces, of the middle and highest levels at least, are supposed to be only *chiefly motor* and their sensory provinces only *chiefly sensory*. I have not attempted any division of the cerebellum into levels.

It is well to give synonyms, popular and scientific, of what I call the highest level of the Cerebral sub-system, the acme of nervous evolution; so-called "organ of mind," "mental centres," "anatomical sub-strata of consciousness," "physical basis of mind." As to the nature of the relation of consciouness or, synonymously, mentation, to activities of the sensori-motor nervous arrangements of the highest level, I have no hypothesis; I assume concomitance of psychical states with nervous states of at least the highest layers of this level. It is right before going further to say that Dr. Ferrier,[2] for whose opinions on all neurological questions I have a most profound respect, differs from me with regard to what I call the highest level. I admit that this part of my scheme is very hypothetical; and I do not suppose that there is so decided an anatomico-physiological difference between the motor provinces of the highest and middle levels as there is between those of the middle and lowest levels. I admit, too, that the scheme of three levels is incomplete; nothing has been said of the sympathetic system, nor of what may be called the olfactory and optic nervous systems; the retina is, developmentally, part of the brain itself, and possibly some elements or some layer of, the retina may be the lowest centre of the optic nervous system.

With regard to the Lowest Level, we have to consider, besides its Intrinsic elements already enumerated, its Extrinsic elements. The extrinsic elements of this level are of two kinds: (1) fibres extrinsic upwards—for instance, those of the pyramidal tract; and (2) fibres extrinsic downwards—for instance, those of the posterior columns. The best illustration of extrinsic elements of the lowest level is given by a consideration of what Sir William Gowers calls ataxic paraplegia. In this malady there is (1) disease of fibres of the lateral columns; those of these fibres which are of the pyramidal tract are fibres extrinsic upwards; there is also (2) disease of fibres of the posterior columns, fibres extrinsic downwards. Although both sets of fibres are solidly part of the morphological mass, the cord, neither is part of the anatomico-physiological community I call lowest level; they are (1) fibres connecting centres of that level with centres of the middle level; and (2) fibres connecting centres of the lowest level with parts of the body.

The next question is as to fibres extrinsic upwards connecting centres of the lowest level with the cerebellum. Connexion by sensory fibres is admitted; fibres of the "direct cerebellar tract" are fibres extrinsic upwards to the cerebellum. Connexion by motor fibres is not admitted. Marchi has described fibres "descending" from the cerebellum into the spinal cord, but these fibres have not been found by Ferrier, Aldren Turner and Risien Russell; recently M. Thomas has expressed his agreement with Marchi.

Sir William Gowers has put forward the hypothesis that, there being no known direct connexions between the cerebellum and motor centres of the cord, the cerebellum exerts a restraining influence on motor centres of the cortex cerebri and that the cerebellum co-ordinates movements by intermediation of these centres. There is an important experiment by Risien Russell in striking accord with Gowers' opinion that the cortex is restrained by the cerebellum; Russell found that after removal of one lateral lobe of the cerebellum, there was increased excitability of the motor cortex of the opposite cerebral hemisphere.

It is convenient to mention here certain of the most interesting and very wide-bearing researches by Dr. Sherrington on what he calls Reciprocal Innervation; his latest paper on this subject, written in conjunction with Dr. Hering, of Prague, was read before the Royal Society, Nov. 18th, 1897. A monkey (Macacus cynocephalus) is placed under ether or a mixture of ether and chloroform and during a stage when there is a maintained flexion of the elbow, to limit attention to that part, the cortical focus presiding over extension of the elbow is faradaically excited; the result of this excitation is an immediate relaxation of the biceps, with active contraction of the triceps; on discontinuing the excitation of the cortex the forearm usually immediately, or almost immediately, returns to its previous position of flexion which is again, as before, steadily maintained. Sometimes during the narcosis the arm assumes a posture of extension, tonic and maintained; if in these circumstances "the appropriate focus in the cortex, previously ascertained, for flexion of forearm or upper arm," is excited the triceps is found to relax and the biceps at the same time enters into active contraction. The authors write:[3] "It should be remarked that under use of currents of moderate intensity we find that not from one and the same spot in the cortex can relaxation and contraction of given muscles be evoked at different times, but that the two effects are to be found at different, sometimes widely separate, points of the cortex, and are there found regularly."

There are some very important and valuable researches by Löwenthal[4] of great interest in many ways, showing that the cerebellum has motor connexions with the spinal cord, if not direct connexions. Löwenthal observed that when the cerebrum of a dog was removed, excitation of a certain part of the cerebellum, acting when the spinal cord was in tonus, produced relaxation of the triceps and contraction of the biceps of the fore limb. Although Löwenthal has shown that excitation of the cerebellum produces motor effects without acting on the cortex cerebri (the cerebrum having been removed in the animals he operated on), it may be that in the coördination of movements of entire animals the cortex cerebri also is acted on by the cerebellum according to the hypothesis Gowers has stated—that the cerebellum in coördinating movements acts in two ways on the cord, directly and round by the cortex cerebri.

I have now to re-state an old hypothesis on dynamical relations of the two Sub-systems to one another by intermediation of motor centres of the lowest level.[5] Speaking very roughly and neglecting some parts of the body, the cerebrum represents movements of skeletal muscles in the order arm, leg, trunk, preponderatingly flexor-wise; the cerebellum represents movements of these same muscles in the order trunk, leg, arm, preponderatingly extensor-wise. It is also supposed that impulses from motor centres of the higher levels of each sub-system continuously act upon the motor centres of the lowest level which are common to both sub-systems; that the impulses from each set of higher levels antagonise, or inhibit, one another; that they do so in different degrees upon different lowest motor centres; and that the degree with which the cerebral or cerebellar influence preponderates is the same as the order of the degree of the different representation by the cerebrum and cerebellum of the muscles of the body. So to say, the cerebrum "has most of its own way" on the arm and most nearly fully antagonises cerebellar "influx" upon lowest motor centres for that limb; and in the same manner of speaking, the cerebellum "has most of its own way" on the trunk and most nearly fully antagonises cerebral influx upon lowest motor centres for that part. In accordance with this hypothesis, the rigidity in the common cerebral paralysis, hemiplegia, results because cerebral influence being taken off the lowest motor centres in the order in which the cerebrum represents movements, viz., arm, leg, trunk, cerebellar influence upon those lowest motor centres is no longer antagonised; there is then unimpeded, and therefore greater,

[2] The Functions of the Brain, second edition, p. 460.

[3] Proceedings of the Royal Society, vol. lxii., No. 381, p. 185.

[4] Löwenthal and Horsley, ibid., vol. lxi., No. 369, p. 20.

[5] See Medical Examiner, April 5th, 1877, and March 28th, 1878.

cerebellar "influx" into the lowest motor centres which the cerebrum *has abandoned*.

It was asserted against this hypothesis that, upon complete transverse lesion of the spinal cord above the lumbar enlargement—both cerebral and cerebellar influence being cut off from centres below the lesion—the legs are rigid and the knee-jerks exaggerated. But Dr. Charlton Bastian[6] has brought forward cases showing that upon *total* transverse lesion of the spinal cord above the lumbar enlargement the legs are flaccid and the knee-jerks absent. His conclusions are, I think, adopted by most neurologists in this country; they have been confirmed by Bowlby, Thorburn and Bruns (of Hanover).

I pointed out some years ago[7] that in some cases of total transverse lesion of the dorsal cord the knee-jerks, at first lost, have returned; in one case after being absent thirty-eight days, in another two years, although in neither case was there any return of motion or sensation in the legs. I have published[8] a dorsal case in which there ensued a loss of faradaic irritability in some muscles of the legs and diminished irritability in others; this case may seem to countenance the opinion of those who believe that the loss of the knee-jerks in cases of total transverse lesion of the cord above the lumbar enlargement is owing to morbid changes in lumbar centres secondary to the transverse lesion; but in the case remarked on, the knee-jerks returned showing that the lumbar centres concerned with these jerks were intact, at any rate in some degree; the returned jerks were not exaggerated. I have several times stated objections which may be brought against the theory of cerebral and cerebellar influx, some of which I admit to be serious. I am able to say that Dr. Bastian is in essential agreement with me as to cerebellar influx. I have, however, to mention that this hypothesis is not accepted by Bruns and Risien Russell,[9] and probably not by most neurologists.

There is another way of considering relations of the cerebral and cerebellar sub-systems to one another on the hypothesis of their having the lowest level in common; we can compare and contrast certain cerebral and certain cerebellar symptomatologies with one another as Complementary Inverses (Corresponding Opposites). Thus in cases of tumour of the middle lobe of the cerebellum there is paralysis in the order of loss of movements of the trunk, legs, arms; this is roughly the complementary inverse of Cerebral paralysis (hemiplegia) in which the loss of movements is in the opposite order, arm, leg, trunk. Another Complementary Inverse, an imperfect one, is cerebellar paralysis and rigidity (I used to call this the Cerebellar Attitude) with cerebral paralysis (hemiplegia) and rigidity. According to the hypothesis advanced the former is paralysis in cerebellar order with "influx" from the cerebrum; the latter is paralysis in cerebral order with "influx" from the cerebellum.

A more perfect Complementary Inverse is of a case of extensive cerebellar paralysis and rigidity, with the double hemiplegia and rigidity which constitute the symptomatology of an advanced case of paralysis agitans; in the former the general attitude is opisthotonic, in the latter slightly emprosthotonic. There is another Complementary Inverse; in some cases of tumour of the middle lobe of the cerebellum there are tetanus-like seizures the complementary inverse of cerebral convulsions. These tetanus-like fits being things paroxysmal, are of different nature from the persisting cerebellar paralysis with rigidity; as certainly as epileptiform seizures (epilepsy described by Bravais, 1827) are of different nature from cerebral paralysis (hemiplegia) with rigidity. I urge this because the tetanus-like seizures (cerebellar convulsions) look like mere temporary exaggerations of the "cerebellar attitude" in cases with which they may occur; they are really very different things.[10] The Tetanus-like seizures depend, I suppose, on *occasional* excessive *discharges* beginning in some part of the cerebellum and producing super-positive effects in cerebellar order, trunk, legs, arms; such a paroxysm (cerebellar convulsions) is, speaking generally, the Complementary Inverse of an Epileptiform or epileptic seizure (a cerebral convulsion) from *occasional* excessive *discharges* beginning in some part of the cerebral cortex and producing super-positive effects in cerebral order, arm, leg, trunk; whereas, as aforesaid, in the persisting cerebellar paralysis with rigidity, there are negative effects in cerebellar order, trunk, legs, arm with *continuous cerebral* influx invading (centre, for) the parts paralysed. I think the younger generation of Neurologists is not well acquainted with these cerebellar symptomatologies; some years ago Dr. Stephen Mackenzie and I investigated several such cases. I published a case of tumour of the middle lobe of the cerebellum with tetanus-like seizures.[11] I used to think that spasmodic drawing back of the neck was a cerebellar, and not a cerebral, symptom. Dr. Buzzard has, however, published[12] a case of retraction of the head from tumour of one temporo-sphenoidal lobe. Tetanus-like seizures occur in cases of glioma of the pons; I have pointed out that when there is cerebellar tumour such seizures (and I have only seen them with tumour) may be said to be owing to pressure on the adjacent corpora quadrigemina or subjacent medulla. Those who adopt the pressure hypothesis have, in some cases of tumour of the middle lobe of the cerebellum, not one thing, but three things to account for, (1) cerebellar paralysis, (2) cerebellar paralysis with rigidity (cerebellar attitude), and (3) tetanus-like seizures. Is it likely that pressure would produce these three very different symptoms?

I speak next of an important principle of Bernard's, one applied by Anstie and Thompson Dickson to nervous maladies. It may be said that every part of the body has some degree of autonomy, and is yet in subordination to, is directed and controlled by, the nervous system or some part of it; the heart has a great degree of autonomy, a skeletal muscle little. After a motor nerve to a skeletal muscle is cut the muscle is not quiescent; there are fibrillar contractions, over-action from loss of control. To go to the other extreme of the nervous system; in cases of post-epileptic mania there is over-action of lower "layers" of the highest level ("mental centres") from loss of function of the highest "layer" or "layers" of that level; "taking off" of the higher layer, Dissolution, is a "letting go" of the lower layers which are then not only no longer directed but also no longer controlled; hence their activities (evolution going on) are at a greater rate than normal. I have suggested that in cases of insanity the rate of "taking off" is a very important factor; that the more rapidly dissolution is effected the greater is the activity of the lower range of Evolution remaining. The senile dement, dissolution very slowly effected, is quiet; the post-epileptic maniac, dissolution very rapidly effected, is the most furious of all maniacs. I have called "the rate with which Dissolution is effected" the third Factor in Insanities.[13]

Another very important thing with regard to my subject is Regulation of the digestive, circulatory and respiratory systems. There are, I have put it, three factors in Regulation. Thus with regard to the respiratory system, there is (1) Nervous regulation; the respiratory, medulla, centre is probably to some extent automatic, goes on by itself; it is also influenced by impulses ascending the vagi and by the higher levels (by "upper brain tracts"); (2) There is Mechanical regulation, the elasticity of the lungs and of the costal cartilages (expiration in quiet breathing being chiefly recoil); (3) There is what, for want of a better term, I will call regulation by Chemical stimuli, and in this case by venous blood, a natural stimulus of the respiratory centres (deficiency of oxygen). With regard to chemical stimuli, a very bad term, I admit, I have suggested that effete nitrogenous products act as natural stimuli to the vaso-constrictor, medulla, centre before they are eliminated by the kidney. I have heard more than one medical man say that he felt better when a little gouty, better for mental exertion I suppose was meant. The late Milner Fothergill[14] said that "gout poison stimulates the intellect in the earlier stages of Bright's disease." I suppose that, owing to an excess of nitrogenous effetes, to an excess of its natural stimulant—the vaso-constrictor centre is highly stimulated in certain cases of Bright's malady, whereby general arterial tension is raised. And since the cerebral arteries have comparatively little muscular tissue (some physiologists consider it not demonstrated that these arteries have vaso-constrictor nerves) the result will be that the brain gets more blood and thus in the early stages of the

[6] Transactions of the Royal Medical and Chirurgical Society, 1890.
[7] THE LANCET, March 5th, 1892.
[8] THE LANCET, Dec. 12th, 1896.
[9] Philosophical Transactions of the Royal Society, 1894.
[10] I have compared and contrasted the symptomatology of tetanus, ordinary surgical tetanus, with that of cerebral convulsion (Medical Press and Circular, June 9th, 1880).
[11] Brit. Med. Jour., Nov. 4th, 1871.
[12] Brain, vol. iv.
[13] Medical Press and Circular, Jan. 13th, 1894.
[14] Journal of Mental Science, October, 1874, p. 401.

malady it will be, at least in some ways, in better working order. This state of things is, however, more pleasant than safe; and yet a salutary reduction of high arterial tension by dieting and by medicines is not always appreciated by our patients. Schäfer's researches on the suprarenal capsules, his showing that an extract of the medulla of these bodies raises arterial tension, is very important in this connexion; arterial tension is raised by this extract, by its action on the muscular coats of the arteries. (It is possible that effete nitrogenous products act similarly and not on the vaso-constrictor centre as I suggested.) It will be seen that in speaking of Regulation and in particular of the factor chemical stimulus I have not been leaving the topic of this lecture; for example, stimulation of the vaso-constrictor centre of the lowest level will influence the higher levels of the cerebral sub-system; there is a roundabout relation between the lowest level and these higher levels; from high arterial tension the brain will get more blood, from low tension less blood.

I have spoken of the possible "stimulation of the intellect," to use Fothergill's expression, in some cases of raised arterial tension. There is, I think, another way in which "the intellect" is affected in certain abnormal states. It has been suggested by Greg[15] (whom Fothergill quotes[16]) that bodily pain and disease "may directly contribute to the loftiest efforts of the intellect. They sometimes positively enhance its powers." Here is a very important question, too large a one to be dealt with fully here. I think that in some states of ill-health, sea-sickness, slight febrile ailments and in some states scarcely to be called abnormal, as in that of general bodily fatigue and that after taking a small quantity of alcohol (only as much alcohol, let us suppose, as, according to the Scotch witness, makes a man not worse, but "better for" liquor), there is increased mental activity *of a sort*, a great flow of ideas. In this mentation there is, I think, mainly an increase of the first "half" of thought, tracing resemblances, whilst the noting of differences, second "half" of thought is diminished; or, to use popular language, there is greater "brilliancy" with less "judgment." If so, it is not a desirable condition even from a non-medical point of view. From lowered arterial tension there may be, I think, much mental activity of the kind mentioned—a kind not likely to be that Fothergill meant when he spoke of "stimulation of the intellect" by "gout poison," if there was rise of arterial tension in that condition. I submit that from lowered arterial tension, the brain receiving less blood, there is some degree, even if a very trivial one, of dissolution of the highest level; only the very highest nervous arrangements of the highest "layer" of this level are, I shall suppose, put out of function or are lowered in function; thus the lower arrangements, those next to the highest, of that layer are in increased activity from loss of control by the now temporarily absent (functionally absent) highest nervous arrangements.

The Scale of Fits.—There are, I think, Lowest Level Fits, Middle Level Fits (the epilepsy described by Bravais, 1824), and Highest Level Fits (so-called idiopathic epilepsy).[17] I now consider only lowest level (ponto-bulbar) fits and only those of them which I think are respiratory. Other lowest level fits are producible by certain poisons, by camphor and absinthe, for example, and I think by some home-made poisons as in uræmic fits; there are, I think, still other lowest level fits analogous to fits producible in guinea-pigs by Brown-Séquard's method.

It is certain that there are respiratory fits in some lower vertebrates, or rather, such fits are easily producible in them by experiment. Kussmaul-Tenner fits in rabbits are of this kind; whether these fits are produced by ligaturing the great arteries of the neck, by rapid bleeding or by sudden obstruction of the trachea, they depend on absence of oxygen; in each there is an excessive discharge beginning in the respiratory, medulla, centre. I have suggested[18] that laryngismus stridulus in man (the infant human being)[19] and convulsions in some cases of whooping-cough in young children are fits beginning by excessive discharge of the respiratory centre.

I must here point out that Horsley and Semon think that attacks of laryngismus stridulus are of cortical origin; they have shown that discharge of the laryngeal centres of one half of the brain will close the glottis; they adduce the existence of carpo-pedal contractions in laryngismus stridulus as evidence favouring their view of its cortical origin. With great respect for the opinions of these men who have done such highly original work on laryngeal representation by the central nervous system, I think carpo-pedal contractions (very different phenomena from paroxysms or convulsion) are not owing to cerebral discharges, but to suspension of cerebral (middle level) influence on anterior horns (some lowest motor centres) for the hands and feet—the function of the cortical cells being, I mean when these contractions occur in cases of laryngismus, lost from supervenosity; the cells of the anterior horns for the hands and feet over-act from loss of cerebral control and perhaps also from greater cerebellar "influx."

I have only spoken of respiratory fits in very young children. It is current doctrine that very young children are prone to fits and I have now to consider how it is that they are prone or to those I call lowest level fits. The breathing of the infant is diaphragmatic; the pyramidal tract is not fully developed in the infant[20]; according to Soltmann's inhibitory nervous arrangements are but little developed in very young animals and thus little in the human infant; it is well known that very young children tolerate large doses of belladonna (a paralyser of the endings of inhibitory vagus fibres in the heart). In the infant up to one year the respirations are 44; I suppose that this great rate signifies little cerebral inhibition of the respiratory, medulla, centre; this inhibition gradually develops in the infant as it grows older when breathing becomes less frequent. A healthy infant's breathing may be irregular with short pauses (Henoch) a slight resemblance to Cheyne-Stokes' respiration. Dr. Goochart[21] remarking on Cheyne-Stokes' respiration writes: "The respiratory centre goes back to its less educated form, and reproduces, in an exaggerated way, the rhythmical character of the respiration that is more or less natural in infancy."

I submit then that we may conclude that, in comparison with the adult, the lowest level centres, especially the Superior Centres, are in infancy little governed (positive-motor), and little controlled (negative-motor or inhibition), by the higher levels—that the lowest centres, and in particular the respiratory, medulla, centre, are in consequence naturally, healthily, more excitable than in older people. Moreover the lowest level in the very young, the new-born, infant, although the most advanced in development of all three levels of the cerebral sub-system, is incompletely developed. It is perhaps partly owing to imperfect development of the cardio-inhibitory centre, or of fibres from it in the vagus (fibres extrinsic downwards) that very young children suffer more from supervenosity than adults do. I say this in consequence of certain remarks by Cohnheim,[22] "..... If the vagi be divided before occluding the trachea, the asphyxia apparently sets in more rapidly in some animals, and certainly the heart invariably becomes much more speedily paralysed than with the vagi intact."

I now consider in outline the Process of Evolution. Strictly we should begin with parts of the body; they make up the lowest level of evolution of the whole organism. I shall deal only with motor evolution, a very arbitrary proceeding since evolution is sensori-motor. I follow Herbert Spencer, using, however, terms more familiar to medical men than he uses. Spencer is not answerable for any misinterpretations I may make of his doctrines or for misapplications of any of them.

There are four factors in evolution. In the evolutionary ascent there is (1) Increasing Differentiation (greater Complexity), (2) Increasing Specialisation (greater Definiteness), (3) Increasing Integration (greater Width of representation), and (4) Increasing Coöperation (greater Association).[23]

(1) *Differentiation.* There is increasing complexity; greater complexity the higher the level. The lowest motor centres represent all the muscles of the body in few different

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[15] Enigmas of Life. [16] Op. cit.

[17] I do not say that all fits *called* epileptic (so-called idiopathic) are owing to discharge-lesions of parts of the highest level. There are seizures *called* epileptic depending on discharges beginning in parts of the tempero-sphenoidal lobe; convolutions of these lobes may not be parts of the highest level. [18] Brain, April, 1886.

[19] For an able criticism of my opinions on this matter, see a paper by Dr. Gay, *Brain*, January, 1890.

[20] I think the great liability of very young children to terminal tonic spasms (carpo-pedal contractions) is owing to incomplete development of this tract; cerebral control is in them easily removed, there being little to "take off."

[21] Clinical Journal, March 1st, 1893.

[22] Lectures on General Pathology, New Sydenham Society's Translations, vol. iii., p. 1089.

[23] The word comparatively is to be understood here and in many other places.

movements. The middle motor centres represent (re-represent) all the muscles in more numerous and more different movements. The highest motor centres represent (re-re-represent) all the muscles in most numerous different movements.[24]

Increasing differentiation is a passage from the simple to the more complex, there arising the higher the level more numerous intermediate degrees of difference between the most different movements represented.

(2) *Specialisation.* There is increasing definiteness of representation the higher the level. The movements represented by the lowest motor centres are for, comparatively, general ends, those represented by the middle motor centres are for more particular ends, and those represented by the highest motor centres are for most particular ends.

Increasing specialisation is a passage from the general or indefinite to the special or definite; there arising the higher the level more numerous intermediate degrees of definiteness.

(3) *Integration.* There is increasing width of representation by centres, the higher the level. Each of the lowest motor centres represents movements of muscles of some region (representation in detail). Each of the motor centres of the middle level represents movements of muscles of a wider region. Each of the (hypothetical) motor centres of the highest level represents movements of a widest region if not of the whole organism.

Increasing Integration is a passage from detailed representation, that is representation of a small region by each of a series of centres of a level (lowest) towards, or to, universality of representation, that is representation of nearly all if not all regions by each of a series of centres of a level (highest). It is very important to understand what is meant by Integration.[25] It may be roughly said to be an increasing "mixing up"; the centres of the middle level "mix up" the detailed representation by the centres of the lowest level; in the centres of the highest level the "mixing up" is so great that each centre or unit represents a great part or the whole of the body.

(4) *Coöperation*.—There is an increasing number of inter-connexions of centres the higher the level. The motor centres of the lowest level have few inter-connexions by fibres.[26] The motor centres of the middle level have numerous inter-connexions. The motor centres of the highest level have most numerous inter-connexions. There is a greater number of inter-connexions, the higher the level.

Increasing coöperation is a passage from centres (of the lowest level) greatly independent of one another in their operations, to centres (of the highest level) having a more nearly necessary concert with one another in their operations. (There is not only the unity of undifferentiation, but the unity of coöperation of the differentiated.)

I have in an earlier part of this lecture mentioned the Scale of Fits—Lowest, Middle and Highest Level Fits. I now attempt a comparison and contrast between middle level and highest level fits as depending on discharges of levels of the cerebral sub-system of different evolutionary grades; I have nothing to say as to the comparison and contrast of lowest level with middle level fits. The middle level fits I call epileptiform seizures; they were described by Bravais in 1827;[27] no one, nowadays, doubts that there is a discharge-lesion, or, perhaps, many would prefer to say "disease," of some part of the so-called motor region (Rolandic region) of the cortex cerebri of one-half of the brain in those cases. Highest level fits are those of the so-called idiopathic epilepsy, or, as I may roughly say, they are "ordinary epileptic fits"; I suppose that most of these seizures depend on a discharge-lesion of some part of the præ-frontal lobe (motor province of the highest level) of one-half of the brain.

The two kinds of fits are examples of *Dissolution being effected.* I submit that the differences in the paroxysms of the two kinds are such as might be expected if the evolutionary differences between what I call the motor province of the middle level and that of the highest level are such as were suggested when the Process of Evolution was considered. In making these comparisons and contrasts I suppose a very severe fit of each kind; in severest epileptiform and in severest epileptic fits there is universal convulsion; it is an error to suppose that an epileptiform seizure at first partial has, when become universal, "turned into" an epileptic seizure. We are obliged to consider seriatim things which occur together.

1. (*a*) An epileptiform seizure begins very locally; (*b*) an epileptic seizure begins comparatively widely. 2. (*a*) In an epileptiform seizure the commencing spasm is particular, there is in the commonest variety a particular disposition or attitude of the thumb and index finger; (*b*) in an epileptic seizure there is not such a particularity of onset. 3. (*a*) In an epileptiform seizure the movements of *each region* are (comparatively) slowly developed; (*b*) in an epileptiform seizure they are (comparatively) rapidly developed. 4. (*a*) In an epileptiform seizure the convulsion has a deliberate march, different regions of the body being involved, comparatively distinctly, one after another; the convulsion *becomes* universal gradually; (*b*) in the epileptic seizure the convulsion has a rapid march, different regions of the body are involved nearly together, the convulsion is universal almost at once. In the following two statements it is not meant that what is given after a figure in one is the exact correspondent of what is given after the same figure in the other.

Do epileptiform and epileptic seizures, differing (1) degree of localness of commencing spasm, (2) in degree of particularity of commencing spasm, (3) in degree of approach to simultaneousness of development of movements of *each region* and (4) in degree of approach to contemporaneousness of development of movements of *several* regions, differ in these four ways because they depend on discharges beginning in (some part of) two levels which differ in that their centres or units represent (1) different numbers of more different movements, (2) movements of different degrees of definiteness, (3) movements of regions of different extent, and (4) movements with different degrees of association with one another?

In accord with the foregoing hypothesis is the fact that the difference between the two kinds of fits is not absolute; in the epileptic fit one side of the body is, at least often, affected a little before the other (turning of both eyes and of the head to one side is common) and a little more than the other. Indeed, I think a very rapidly developed epileptiform seizure approaches an epileptic fit in character and that a very slowly developed epileptic fit approaches an epileptiform seizure in character; if so the hypothesis is further supported.

At the close of one Section of his very important work, L'Epilepsie (1852), p. 430, Herpin writes: "Nous aurons achevé cette longue section, quand nous aurons fait connaître quelques rapports qui existent entre la nature du début et l'intensité plus ou moins grande de l'attaque. Quand la période de crampes ou convulsions partielles initiales est prolongée, l'accès est le plus souvent incomplet ou fort court. Le cri unique et intense marque, au contraire, le début d'un accès violent. Plus la chute est brusque, plus ordinairement l'accès est fort. En résumé: *plus le début est long, moins la crise est violente; plus il est instantané, plus l'accès est intense.*" (Italics in original.)

I suppose that in cases of epilepsy and of epileptiform seizures there is a very local discharge-lesion (physiological fulminate) of a few highly unstable cells of one half of the brain. I have thought that there are certain differences in convulsions depending on differences in liberations of energy

[24] By re-represent I mean, as already said or implied earlier in the text, that the middle motor centres represent over again in more complex, &c., ways, what the lowest motor centres have represented in simplest ways and by intermediation of those lowest centres; by re-re-represent I mean that the highest motor centres represent over again what the middle motor centres (re-representative centres) have represented and by intermediation of those middle motor centres in most complex, &c., ways. This being explained, I shall in future use the word represent.

[25] The formula of evolution implies a doctrine of Localisation, and one very different from the current doctrine of "abrupt" localisation. Integration is ignored by the current doctrine. It is an exceedingly important factor. It is well stated by Dr. Mercier, who, dealing with Localisation in an article, Coma, in *Brain*, January, 1887, p. 480, writes: "In the lowest centres of all the localisation is no doubt extreme. Such centres represent a limited part of the body very strongly; they represent little else, and that little but feebly. But in the highest regions each centre represents a large part of the organism preponderatingly, a still larger part in less degree, and the whole of the organism in some degree. And in the intermediate centres the representation is intermediate in character, a larger or smaller area being preponderatingly represented, and the halo of partial representation being larger or smaller, while the intensity of the representation is less or more, according as the centre is more or less elevated in the hierarchy of the nervous system."

[26] Although I use the expression "connexion by fibres" any sort of physical junction or any kind of pathway, definite or indefinite, ensuring more or less certain coöperative activity of different nervous elements suffices for the hypothesis mentioned in the text.

[27] They are sometimes called "cortical fits," a term I do not use, as I believe that highest level fits (so-called idiopathic epilepsy) are cortical too, a different region of the cortex cerebi being affected in them.

by nerve cells (nervous discharges). We have in the case of discharge-lesions to consider two things, or two aspects of one thing—quantity of energy liberated, and the rate of its liberation. With regard to convulsions produced partly directly but mainly indirectly by a discharge-lesion, we have to consider the degree of convulsion, the range of convulsion, and the time in which that range is attained, and particularly whether the onset of the fit is "deliberate" or "sudden." In two liberations of equal qualities of energy but at different rates there is the same momentum or quantity of motion; but the *force* of the more rapid, but shorter, liberation of energy will be greater than that of the slower and longer liberation. Using an old-fashioned term, the more rapid the discharge the more "intense" is the fit (*vide supra*, Herpin).[28] The more rapid the liberation of energy (primary discharge) by a discharge-lesion, the more numerous and greater the resistances which will be overcome, the more numerous collateral, healthy, comparatively stable, elements will be compelled to discharge (secondary discharges), and thus the more the amount of convulsion and the greater its range. What is said bears on the interpretation of paralysis after convulsion.

I have suggested that the degree and range of paralysis after convulsion is proportionate to both the quantity and rate of the discharge in the paroxysm. I will now consider one aspect of this question; ignorance of physics will I fear prevent my dealing with the subject properly. It is well known that a ligature above (and some other disturbances of) a part of the body in which an epileptiform convulsion is starting, will sometimes arrest the convulsion, or will keep the spasm more local. I suppose the procedure mentioned leads to inhibition of the cortical cells discharging, stops their discharge or makes it slower (fewer nervous impulses in a given time). A consequence of the slackening of the discharge of the fulminate is that it overcomes the resistance of fewer collateral normal nerve cells, the answering convulsion being correspondingly limited; yet, in the narrowed limit, the convulsion is greater in degree, consequent on concentration of what discharge there is upon a part; the subsequent temporary paralysis is, I have thought, more limited, but greater in degree locally, and lasts longer. I have recorded[29] the case of a man who had fits beginning in his left foot. "The first shock was from the base of the great toe;" he became insensible and was not, he told me, locally paralysed after the paroxysms. At length he found that he could stop his fits, prevent the convulsion spreading, or rather that his son could, by rubbing the calf (the spasm being by the procedures adopted kept to the leg); *then the leg was always temporarily paralysed after each seizure.* I think it possible that in another case of an epileptiform seizure beginning in the left foot[30] my procedures to stop a fit I witnessed caused the spasm to be more limited in range, almost confined to the leg, and that consequently there was decided temporary local paralysis, of the leg, after the seizure; the arm was very slightly paralysed also. He had had three seizures before the one I saw, each beginning in his left foot; in the first and second he lost consciousness; in the third he did not; I got no account of any decided paralysis after the first three seizures, but he said he felt weak after the attacks and if this weakness were local, he was locally paralysed. But I see no warrant for concluding that he had any notable local paralysis after the first three attacks; after the fourth attack, the one I witnessed, there was great and lengthy (four hours) paralysis of the leg. The patient seemed to think that my attempts to stop the fit were the cause of his being paralysed after it. Had I not interfered, he would, I think, have had spasm less in amount *locally*, less in the leg, but greater in amount spread widely and rapidly, possibly universal convulsion; after the paroxysm he would have had, I suppose, a slighter degree of local, leg, paralysis, but more paralysis widespread. I consider that, if I did keep the convulsion limited to the leg and if I were thus the cause of that limb being so much paralysed after the attack, I did the patient good service. It is better to have convulsion limited to a leg than less convulsion of that part, but spreading to the respiratory muscles, and possibly all over the body. It is true that there may be more *local* paralysis when the seizure is limited in range, but then such paralysis is temporary. Surely it is better to have temporary paralysis even of much of one side of the body after a fit than to have that condition of the highest cerebral centres which loss of consciousness implies. I think the patient referred to had more local paralysis, but less paralysis altogether than he would have had had I not tried to stop his fit.

I admit difficulties in the way of the hypothesis I have stated as to the effects of the rate of discharge in a fit, on the degree and range of paralysis after the fit. It is right to draw attention to what a great authority in neurology, Sir William Gowers, has said against it. I refer to his important work on Epilepsy (p. 102). In his "Diseases of the Nervous System,"[31] he writes: "After a severe fit, it [paralysis] may be due to exhaustion of the nerve-elements, but the transient palsy that succeeds a very slight fit must be ascribed to inhibition of the motor centres. ..... Just as such a discharge in the sensory centre may, as we have seen, set up secondary discharge in the motor centre, so it may, when slight, merely inhibit the centre." I believe, but I dare not be sure, that I have always applied my hypothesis to cases of paralysis *following convulsions*; I do so in this lecture. It is possible that, as Gowers supposes, sensory discharges may inhibit motor centres in those paroxysms in which there is little or no spasm and in which there is much post-paroxysmal paralysis.

I now make some general remarks on Dissolution. Dissolution from disease is rarely if ever the exact reverse of Evolution. Thus, in progressive muscular atrophy, in which malady *motor* centres of the lowest level are involved, there cannot be the exact reverse of evolution which is on a *sensori-motor* basis. Another example; there are different kinds of insanity, to mention two, general paralysis and melancholia; as they must be owing to disease of different regions of the highest level (different parts of the "mental centres") neither of them is a Dissolution the exact reversal of Evolution of the whole level.

When we consider nervous maladies as Dissolutions we have to bear in mind not only the Dissolution, that which is effected by disease in the sense of pathological change, but also the Evolution going on in the undamaged, healthy, remainder. There are some obvious exceptions to the implication that a range of evolution remains in cases of Dissolution; for example, in absolute dementia, if there be such a thing, there is no lower range of evolution remaining in the highest level, all "layers" of it being functionless. Taking the case of insanity for illustration, and ignoring that extreme degree of it which I have spoken of as absolute dementia, I submit that whilst the negative affection of consciousness in every insanity answers to the Dissolution, loss of so much, the positive mental symptoms, illusions, delusions, &c., signify Evolution going on in the healthy remainder, going on in parts which disease has spared, going on on a lower, but now the highest, range of Evolution of the highest level.

I wish to draw particular attention to another matter regarding Evolution and Dissolution in nervous maladies. I have elsewhere spoken of Dissolution by disease as beginning in the latest developed; this, I now think, may be true or untrue according to the meaning we give to the word "developed." It is notorious that the hand is frequently affected in nervous maladies, the thumb and index finger often suffer. Yet, embryologically, the hand appears before the other segments of the arm, and the radial digits appear before the ulnar fingers. It is well known that the hand is a part of the body which is late in coming into full use. With regard to Dissolution exemplified by morbid affections of this region of the body, I would now say that Dissolution begins in the "earliest appearing," but "latest perfected" parts of the arm. I am too ignorant of Embryology to be able to say how far the same principle may apply—whether or not the latest perfected is as a rule the earliest or the early appearing; appearing in a more or less rudimentary degree or crude form before it is perfected.[32]

Dissolution is from the least towards the most organised. It is necessary here to remark that such an expression as "high organisation" is not, when used with regard to the nervous system, synonymous with most complex, &c.; indeed, the most complex, &c., nervous arrangements, centres and

[28] On a pu voir que, dans les attaques les plus intenses de notre échelle, les convulsions sont générales. Herpin: De L'Epilepsie, p. 450.

[29] THE LANCET, May 16th, 1868.

[30] Medical Times and Gazette, Feb. 12th, 1863.

[31] Second edition, p. 743.

[32] Spencer writes, Principles of Sociology, vol. i., p. 472: "..... it happens that entire organs which, during the serial genesis of the type, came comparatively late, come in the evolving individual comparatively soon. This, which Professor Haeckel has called heterochrony, is shown us in the early marking out of the brain in a mammalian embryo, though in the lowest vertebrate animal, no brain ever exists.'

levels, are the least organised; the most simple are the most organised. Thus the centres of the lowest level are much more strongly organised than those of the highest level are. It is very important to bear this in mind. A man deeply comatose from sucking raw spirits out of a cask and whose highest level, or presumably most of it, is rendered quite functionless by much alcohol rapidly taken, recovers because the "vital" centres of his lowest level are very strongly organised and go on working, although imperfectly, when the comparatively weakly organised centres of his highest level have "given out." If the "vital" centres of the lowest level were not strongly organised at birth life would not be possible; if the centres or the highest level ("mental centres") were not little organised *and therefore very modifiable* we could only with difficulty and imperfectly adjust ourselves to new circumstances and should make few new acquirements. The highest level is supposed to be less and less organised and therefore less and less automatic, the higher its "layers"; the highest layers are the least organised, least automatic,[33] and their activity is attended by most vivid consciousness; they are most easily rendered functionless by certain general injurious agencies, such as alcohol, by great heat in febrile diseases, &c.

There is another relation of the several levels to one another, the consideration of which is very important, from a medical point of view. Schroeder van der Kolk[34] has stated that the spinal cord of a sturgeon weighing 120 lb. is about equal in thickness to that of a frog; he says "that the more complicated their [animals] movements, the more numerous will be the ganglionic cells with their several groups, and thicker will be the anterior horns and the masses of grey substance in the spinal cord." Herbert Spencer has written to the same effect, but more generally.[35] The principle involved is well illustrated by Horsley and Schäfer[36] when speaking of what they call the trunk area of the motor region of the cortex cerebri; they write: "It certainly is not a little remarkable that the numerous and powerful muscles of the spine should be governed from so small a portion of the cerebral cortex, but it is to be remembered that the movements of which the spine is capable are comparatively few and simple."

It would seem that motor centres are voluminous—contain more cells and fibres—not in proportion *to the size of the muscles* they represent, but in proportion *to the number of different movements of muscles* which they represent; the higher the level the more numerous different movements does it represent, along, of course, with corresponding impressions (sensory element) which I am neglecting; hence a greater number of cells and fibres the higher the level. It is clear that the cerebral hemispheres are much more voluminous than all the centres of the lowest level put together are; moreover, there are the centres of the cerebellum which, or some of which, it has been suggested, represent by intermediation of the lowest level very many different movements of all parts of the body, most especially movements of large and powerful muscles those of the trunk and legs (locomotion). I now, however, deal with the cerebral sub-system only.

I think we may say that the higher the level (I shall limit consideration to the motor provinces of the levels), the more tolerable is destruction of a given number of cells (destruction-lesion) and the more intolerable is high instability, instability far above normal, of an equal number of cells (discharge-lesion). For the higher the level the greater is its "intricacy" (See part of the lecture on the Process of Evolution for qualifications of what follows). To take the case of destruction-lesions first. Suppose destruction of so much (1) grey matter of motor centres of the lowest level as would paralyse one arm completely; I submit that a loss of (2) the same quantity of grey matter of the "arm centre," a motor centre of the middle level, would produce only weakness of the limb, and that (3) a loss of the same quantity of grey matter of the motor province of the highest level, of any part of it I may say, would produce scarcely any, if any, *obvious* effect on the arm. If what was said of the evolutionary process be true, it is clear that the higher the level the greater the Compensation for a destruction-lesion, or, as I just said, the more tolerable is that kind of lesion. It is quite otherwise in the case of discharge-lesions, or, synonymously, physiological fulminates; indeed, there can be no compensation[37] for a discharge-lesion. I have nothing definite to say of persistent discharge-lesions of the lowest level, although I suppose there are such lesions in cases of the third division of lowest level fits, those in man which are analogous to the fits produced in guinea-pigs by Brown-Séquard's method. I only deal with effects of persisting discharge-lesions of parts of the middle and highest levels, that is, with epileptiform seizures (the epilepsy described by Bravais, 1827) and with seizures of so-called idiopathic epilepsy. The highly unstable cells of a discharge-lesion (or fulminate) remain connected with other (no doubt, in gradually increasing degrees of indirectness, with all other) normal, comparatively stable, cells of the level of which such a lesion is a small part; and most of the fit is beyond question owing to secondary discharges (induced by the primary discharge, that of the fulminate) of these normal cells, with next discharge, of course, of cells of a lower level or of lower levels. The higher the level the more numerous are the normal cells which, upon discharge of the local fulminate, can be compelled to Coöperate in Excess; since the higher the level the more "intricate" it is, there being the greater number of fibres (intrinsic elements) inter-connecting cells of the level, as well as a great number of fibres to cells of lower levels (fibres extrinsic downwards). Coöperation in Excess is, so to say, Compensation Inverted. The two things Compensation for a destruction-lesion and Coöperation in excess for a discharge-lesion are to be carefully considered with regard to principles of Localisation. The motor province of the highest level (præ-frontal lobe) is not more, or not much more, voluminous than is the motor province of the middle level; I now consider this matter.

Evolution is not an "even process," not one to be exactly symbolised by the raising of an expression to a higher power, by what is called Involution in algebra. If I may put it so, increasing evolution in the nervous system may, at least in some cases, be likened to the raising of some parts of an expression to a higher power than other parts of that expression are raised to. From theoretical considerations I think that in man the motor province of the highest level, a division of the "mental centres," represents very many movements of parts of the body which have small muscles,[38] and that it represents comparatively very few movements of parts having large muscles. If so it especially represents most complex, &c., movements of the ocular muscles, of the muscles of the hands, and of those of the tongue, lips and palate; these are movements represented (of course, with corresponding sensory elements) in the physical bases of visual and tactual ideas and of words in the highest level ("mental centres.")

The main elements of that part of mind which is commonly distinguished as intellect from the other part called emotion or feeling, are visual and tactual ideas and words. Much the greater part of mentation, both in the sane and the insane, is carried on in Visual ideas; if all Visual ideas were cleared out of a man's mind he would be practically mindless. Further, much mentation is carried on in Tactual ideas. Herbert Spencer[39] has pointed out that intelligence in animals is proportionate to the development of tactual organs; to use his words, "a highly elaborated tactual apparatus comes to be the uniform accompaniment of superior intelligence." He writes[40] that "tactual impressions are those into which all other impressions have to be translated before their meanings can be known"; again (p. 362) he writes: "that the most far-reaching cognitions, and inferences the most remote from perception, have their roots in the definitely combined impressions which the human hands can receive." In this regard we have also to bear well in mind that movements of the hand and arm serve in very many important "voluntary" operations, in manipulations, such as writing, &c. I have suggested[41] that the nervous arrangements in the highest level for such movements have psychical concomitants (so-called "ideas of

[33] We should not speak of degrees from most automatic to most voluntary, but of degrees from most to least automatic.

[34] On the Spinal Cord and Medulla Oblongata and on Epilepsy, p. 64, New Sydenham Society's Translation.

[35] Principles of Psychology, vol i., p. 35 and 55.

[36] Philosophical Transactions of the Royal Society, vol. 129, 1888, B.

[37] Perhaps the highly unstable cells of a discharge-lesion are useless for *normal* function; for this uselessness there may be compensation. In the text I am speaking of the cells of a discharge-lesion on the occasions when they are excessively functioning.

[38] There are certain qualifications to be given to the expression "small muscles" for which I refer to my second Lumleian Lecture. THE LANCET, April 5th, 1890, p. 758.

[39] Principles of Psychology, vol. i., pp. 358 and seq.

[40] Op. cit., p. 358.

[41] Medical Press and Circular, Aug. 30th, 1893.

movements"). Duchenne insists strongly on the high importance of the flexor longus pollicis in man—"qu'il aide, en un mot, à l'exécution des travaux manuels qui sont à la hauteur de son intelligence supérieure."[42] The thumb has eight muscles; it and the index finger together are "the most intelligent parts" of the body. As to Words, since speaking is propositionising, I suppose no one denies that they serve in all higher thought[43] in what has been called conceptual thought. I think that the physical bases of the psychical things we call words are audito-articulatory nervous arrangements, and believe that highly complex and special movements of the tongue, lips and palate are represented in the highest level. I have neglected emotional manifestations and now deal with them only so far as skeletal muscles are concerned in them. Herbert Spencer has some important remarks on the engagement in these manifestations of muscles according to size:[44] "Muscles which are large, and which can show states of contraction into which they are thrown only by moving limbs or other heavy masses, will yield no signs; while small muscles and those which can move without overcoming great resistances, will visibly respond to this feeble wave."

This evidence points, it is suggested, to the conclusion that the "mental centres" or, as I say, centres of the highest level, represent vast numbers of movements of parts having small muscles, although few movements of parts having large muscles. We have in this connexion to take into account the innumerable combinations into which visual ideas, tactual ideas, the psychical states concomitant with activities of nervous arrangements of the highest level for manipulatory movements, words and emotions can enter; consider too what is involved on the physical side in our seeming to see solidity and hardness when these are merely inferred. The implication is that there are vast numbers of fibres in the highest level ("mental centres") interconnecting the physical bases of the psychical states mentioned. We may, I think, conclude that the higher level, although not more voluminous, is more "intricate" than is the middle level as that is than the lowest; and consequently that a destruction-lesion of a part of the highest level is much more tolerable than one of an equal quantity of the middle or lowest; the opposite for discharge-lesions.

It is interesting that[45] after amputation of limbs the parts of the lost members which remain spectrally present to the patients are the terminal parts, hand and foot; it must not be forgotten that they can "move" these spectral parts. The sufferers are in most cases unconscious of the part between the phantom hand or foot and the stump, if I may be pardoned the expression; they are "conscious of the parts" having small muscles, or we may say those parts are mentally present to them. This does not show that the intervening parts, those having large muscles, are not represented at all in the highest level; on faradaising nerves of the stump the whole limb "comes back," becomes spectrally present to the patient (Weir Mitchell). Here is some indirect evidence that parts, those of the arm at least, having small muscles are more represented in the highest level than are the parts having large muscles.[46] Now perhaps will be understood what I meant when I spoke of nervous arrangements in the highest level for manipulatory and other "voluntary" movements having psychical concomitants (so-called "ideas of movement").

In this connexion I draw attention to a very interesting paper by Mr. F. H. Bradley.[47] In introductory remarks Mr. Bradley asks: "Why, when we strive to move in dreams do we not always move?" Perhaps this inability accords with the hypothesis that large movements (those especially engaged in locomotion) are but little represented in the highest level ("mental centres"). Mr. Bradley makes the interesting remark that dream-movements are easier in some dreams, "thus for example, it is common to move the lips and tongue and fingers," parts having small muscles (I have been told by several people that they can move in dreams).

A man may have a dream in which he cannot do something he earnestly wishes to do—cannot, for example, move away when naked in very awkward circumstances. I believe the physical side of this inability to act in a dream is partly because locomotor movements, movements of large muscles, are little represented in the highest level and partly because the discharges of the highest level corresponding to the ideation of the dreamer (incipient action) are not strong enough to overcome the resistance of the motor centres of the middle level; when they become strong enough to do so the patient awakes, or perhaps there is somnambulism. The motor centres of the *middle* level which especially represent small muscles, seem, having regard to the researches of Betz, Mierzejewsky and Bevan Lewis, to have most small cells whilst those centres of this level which represent large muscles have many large cells. The larger the motor cells of this level the greater resistance, I imagine, do they offer to discharges of motor cells of the highest level. I will now consider some parallel conditions from cases of epilepsy; some preliminary remarks are needed.

When speaking of dreams we are dealing with (correlative) normal discharges of nervous elements perhaps slightly greater than in waking; when speaking of an epileptic paroxysm we are dealing with a *suddenly occurring* and *excessive* discharge beginning in *part* of the highest level (*vide* supra). This distinction must be well borne in mind; the matter is, however, not simple. *After* an epileptic fit there may be elaborate actions and these result, I consider, from discharges which are very much slighter in degree than the excessive discharges productive of the prior paroxysm; the discharges to which the actions answer are, I think, only a considerable exaggeration, from loss of control, of normal discharges.

In some minor fits of epilepsy (so-called idiopathic) there is, speaking clinically, cessation of consciousness and there are very few and slight peripheral effects. This is a very remarkable thing; I suppose the explanation is that the currents from the local discharge-lesion of some small part of the highest level are, on account of the resistance of the motor centres of the middle level, almost confined to the highest level and therefore irradiate widely in it; I think the parts of the body affected in the slight convulsion of such minor seizures are those having small muscles, the cells of the middle centres for them having small cells and being paths of little resistance. I should, however, like to have more precise observations on paroxysms of minor epilepsy before concluding on the nature of the slight convulsions in them. (I am speaking of skeletal muscles not of the musculature of arteries, intestines, &c.) It is well to say here with regard to slight seizures of epilepsy, that it is imperative to distinguish movements properly-so-called, such as of chewing or tasting, twiddling the fingers, &c., from those contentions of many movements, even of limited parts, which we call convulsions.

According to many eminent alienist physicians greater mental deterioration occurs in cases of epilepsy with minor attacks, than in cases with the greater attacks; if this be so it may depend on wide irradiation in the highest level during these slight paroxysms, the discharges being "pent up" in it, and being frequently repeated. Temporary improvement in mind may occur in some epileptics subject to many slight fits after a severe fit. I once congratulated a mother on the fact that her son had not had a severe epileptic fit for a long time; she, however, regretted it saying that a severe fit "cleared his system," whilst the slight fits from their frequency rendered him unable to go to business. (What she called "clearing" the system we may call "relieving tension" of the highest level.) Dr. Campbell Clark[48] writes: "..... Experienced and observant attendants will tell you in the wards, pointing to individual cases of epileptic excitement, that the patient has only had 'choked-off' fits, and that as soon as a major fit appears the mental symptoms will subside."

What I have said shows that we have to consider nervous centres not only, to speak very roughly, as "reservoirs of energy," but also as "resisting positions"; the resistance of a nerve cell has to be overcome before it is discharged. Patients who have long had such minor fits of epilepsy ("idiopathic") as I have just mentioned do not become subject to their worst fits (les grands maux) by having seizures of intermediate degrees of severity; some sad day the patient instead of having a minor fit (le petit mal) has a very severe one (le grand mal). I suppose this means that on that day the cells of the discharge-lesion of the highest

[42] Physiologie des Mouvements, p. 251.

[43] Of course other symbols (pantomimic) in propositions serve in the mentation of untrained deaf-mutes.

[44] Principles of Psychology, vol. ii., p. 542.

[45] Weir Mitchell: Injuries of Nerves, Chapter xiv., 1872.

[46] It is, however, trusting to this implication, difficult to understand how it is that the foot is so much represented in the highest level (in the "mental centres").

[47] Mind, July, 1894, p. 373, On the Failure of Movement in Dreams.

[48] Mental Diseases, p. 227

level had become more numerous or so much more highly unstable as to be able on their discharge to overcome the resistance of, to "break through," the middle motor centres, large as well as small cells; after which the lowest centres would be overcome and discharged (all three levels of the central nervous system are concerned in severe fits of epilepsy—"idiopathic"); finally, the periphery (ento and epi)—lowest level of the whole organism—would be gained.

To return to some states of sleep for a while. Suppose a man is asleep and dreaming; for this double psychical condition of two opposites, there is a corresponding double physical condition, also of two opposites, of the highest level; there is loss of function of, I will suppose, the highest "layer," answering to the negative part of the sleeper's mental condition and there are increased activities of the uncontrolled lower layers which answer to the mentation of his dream. The nervous activities correlative with the mentation of his dream are, I suppose, confined, or nearly confined to his highest level, the nerve currents not being strong enough to overcome the resistance of, or of but few of, the elements of the middle motor centres; there is therefore wide irradiation of these "boxed-up" currents in the highest level. But if the dream becomes very vivid and, correspondingly, the correlative nervous activities very strong, the resistance of the motor centres of the middle (and next that of those of the lowest level) is overcome; the middle motor centres *being overcome* are *then* paths (downward) of least resistance; the irradiation in the highest level will be much less wide; the dream ceases, or rather its mentation merges into, or gives place to, waking mentation. I will now take a case of somnambulism, sleep with elaborate actions; from this condition, the rule is, nothing is remembered on full awakening. In this case the middle centres are overcome; if they were not (and after them the lowest), there could be no actions; thus the nerve currents are not confined to the highest level and consequently, in comparison with what occurs during a dream, there is less wide irradiation in that level and consequently the dream is very faint, or possibly there is no dream. To say that there is no dream in somnambulism is however to say more than one can know; it is better to say that nothing is remembered from the state of somnambulism on awakening. Here is an old question. Is even deepest sleep ever dreamless? (Leibnitz, Kant, Jouffroy, and Sir W. Hamilton thought sleep was never dreamless.) I feel sure that in somnambulism there are some nervous activities of lower layers of the highest level, determining, by sub-agency of motor centres of lower levels, the elaborate actions of the somnambulist; there may or may not be mentation (a dream unremembered on recovery) attending those activities.

Such relations between the different levels as I have illustrated by different states of sleep are very important with regard to epilepsy, especially a particular variety of it; I mean cases in the minor paroxysms of which there is the so-called intellectual aura, or, as I prefer to call this very elaborate mental condition, the "dreamy state." The patient on coming fully round from his fit and its effects remembers that mental state (else we should get to know nothing about it); but when *after* the fit in which it occurs there is a stage of elaborate actions with so-called loss of consciousness, he remembers nothing from that state. I think it unlikely that the "dreamy state" ceases when the patient begins to act notwithstanding that he remembers nothing from that stage; more likely it diminishes and *becomes more definite*. In some cases there is a traceable community of nature between the "dreamy state" and the subsequent actions: I have spoken of such cases.[49] "A patient of mine had the 'dreamy state' of 'being somewhere else'; after the paroxysm he, as his friends put it, 'made for the door.'" Here I believe is the explanation of so-called Procursive Epilepsy. I do not think that anything like an *epileptic* discharge would cause a man to run; the running in these cases begins, I believe, when that discharge is over, but before the highest layers of his highest centres rendered functionless by that discharge have become again functionable; the running is determined by activities of lower layers of the highest level (with concomitant dream), with sub-agency of the middle and lowest levels.

[49] Lectures on the Diagnosis of Epilepsy, Medical Times and Gazette, vol. i., 1879, p. 143; at p. 225 op. cit.

Clinical Lecture

ON

A CASE OF CHRONIC MEDIASTINITIS.

Delivered at Paddington Green Children's Hospital on Dec. 15th, 1897.

BY G. A. SUTHERLAND, M.D. EDIN., M.R.C.P. LOND.,

PHYSICIAN TO THE HOSPITAL.

GENTLEMEN,—The case which I bring before you to-day is not a common one, but its interest lies not so much in its rarity as in the physical signs which are extremely instructive. It is an advantage from some points of view to be able to recognise a leading symptom, to label the disease, and at once to prescribe the appropriate treatment, but this does not conduce to much thought or to much progress in knowledge. There are advantages, on the other hand, in considering a case like the one before you because the history and the physical signs must be carefully gone into and the diagnosis can only be reached by a process of reasoning based on a careful study of all the symptoms present. Further, this is not an affection much referred to in the text-books, but it is none the less important, and when once you have studied one case you are much more likely to recognise the next that presents itself.

Six months ago this boy, who is now eight years old, was brought to the hospital because of swelling of the abdomen and exhaustion with shortness of breath on exertion. The symptoms had commenced some months previously and the medical man who was called in found that the patient was suffering from heart disease. There had been no œdema of the lower limbs, but the face was noticed to be rather puffy about the eyes. His previous health had been good on the whole. Three years previously he had had an attack of left-sided pleurisy with effusion. In infancy he had suffered from rickets and bronchitis and at the age of three years he had been troubled with a paroxysmal cough. He had never had scarlet fever, chorea, or "growing pains." There was an absence of any constitutional disease in the family history.

Examination on admission showed that the boy was rather thin with some puffiness about the eyes and a dusky colour on the cheeks, lips, and tongue. There was no œdema of the extremities but the finger- and the toe-nails were somewhat blue and the superficial veins generally were dilated. A prominent feature was the large globular abdomen, measuring 27 in. in circumference, which was distended with free fluid so that normal intestinal resonance was present only over a small area around the umbilicus. The fluid also passed in front of the liver which could be felt on dipping to extend for some distance below the costal margin. The spleen was not enlarged, but the tense state of the abdominal wall prevented any complete examination at this stage as to the presence of enlarged glands or other growths. The respirations were short and rapid but not accompanied by any signs of dyspnœa or by coughing. The expansion of the chest wall was limited and the percussion note generally was not good, there being distinct impairment over the left base anteriorly and posteriorly. The breathing was harsh vesicular back and front for some distance around the mid-line and rather faint in the axillæ and at the bases of the lungs. Cardiac pulsation could not be determined by palpation, but on percussion the area of dulness was not apparently enlarged. At the apex the sounds were weak but regular and no murmur or other evidence of organic disease could be detected. The urine was of normal amount and specific gravity and contained no albumin or sugar. Thus far we were not able to come to any definite diagnosis. The boy was put on a diuretic mixture and mercurial inunction was ordered for the abdomen. At the end of a fortnight the fluid in the abdomen had increased and in addition the heart was weaker and more irregular, the breathing was more laboured, the face was more puffy and more cyanosed, and albumin was present in the urine. Accordingly the abdomen was tapped

and 106 ounces of clear albuminous fluid were drawn off with great relief to the patient and with the disappearance of the pressure symptoms just mentioned. Examination now showed the liver to be enlarged downwards, the lower border extending to the level of the umbilicus. The substance felt firm, the margin was sharp, and it was thought that the surface was rather irregular With this exception nothing abnormal could be detected in the abdominal cavity.

Now, if you examine the abdomen to-day you will find that the condition is very much as I have just described it. During these six months the abdomen has been tapped eleven times and fluid varying in amount from seven to ten pints has been drawn off. The liver appears to be somewhat smaller and harder than it was, but I cannot detect any marked irregularity—certainly there are no definite nodules. The abdominal wall seems thickened as if from peritonitis, but there are no adhesions, as evidenced by the completeness with which the fluid is evacuated on tapping. Consider next the boy's general condition. He is sitting up in bed in his usual position and with his usual expression of placid contentment. If you ask him he will assure you that he has at present no pain or discomfort of any kind and that he eats and sleeps well. Perhaps I should qualify the last statement by saying as far as his duties allow him, for he acts as his own clinical clerk and carefully records any symptom which may arise during the day or night. His temperature, apart from complications to which I shall refer, has been normal. The urine at times is scanty and contains albumin, more especially when there is great abdominal distension, but this condition passes off after tapping and there are no tube casts or other signs of renal disease. The state of the heart has not materially altered. The sounds are still rather weak and the pulse is soft. He has had several attacks of follicular tonsillitis with considerable pyrexia You will observe the dusky appearance of the lips, tongue, and fingers which was present on his admission and which is practically unchanged. There is, however, some clubbing of the fingers and toes which is of more recent development. We have been a good deal occupied in observing the pulmonary conditions and to the history of these I wish to direct your careful attention. About a month after admission he developed a cough which increased rapidly in intensity and became of so explosive a character that, whooping-cough being suspected, he was removed to the isolation ward. During the course of the next seven weeks this cough persisted and at times was of an extremely exhausting character. It was paroxysmal in type, most severe at night, and during an attack the face became much more swollen and cyanosed. Soon after the onset hæmorrhage occurred in the lower eyelids and under both conjunctivæ so that the whites of the eyes were entirely concealed by extravasated blood. Vomiting followed an attack of coughing on a few occasions, but there was never any whoop or epistaxis. The signs in the chest were those of bronchitis, there being numerous moist and dry catarrhal sounds distributed generally over both lungs. During this illness there was œdema of the chest wall and very marked dilatation of the veins in the upper part of the thorax. Careful examination was made as to the presence of any mediastinal affection but no dulness on percussion or alteration in the breath sounds could be determined. The expectoration was extremely scanty, frothy, and at times blood-stained. You will observe that these signs—with the exception of the absence of any whoop—would fit in very well with a diagnosis of whooping-cough. The signs, however, are not diagnostic of whooping-cough but are indications of the severity of the cough, being most frequently associated with that affection but occurring with any spasmodic cough of sufficient violence. We hesitated for some time but have now come to the conclusion that it was not whooping-cough. Since the acute attack there have been others of shorter duration but presenting the same violent paroxysmal useless cough, which does not seem to be induced by any intra-pulmonary condition, but which may lead to some pulmonary catarrh with scanty frothy sputum. At times also there have been evidences of pulmonary œdema affecting the right or the left base or both bases. About two months ago we found that there was some impairment of resonance over the upper part of the sternum, which has gradually extended on each side and now dulness has become quite marked. Soon afterwards coarse pleuritic friction was detected over the sternum and passing downwards to the axillary regions on both sides. This pleurisy was unaccompanied by any pain or pyrexia and was accidentally discovered. The friction, which is of an extremely coarse grating character, is still well marked, especially after the abdomen has been tapped and the respirations have become fuller. It can then be traced from the mid-line in front outwards into the axillæ, downwards over the hepatic region to the costal margin, and around the bases of the lungs to the back. You will also be able to make out the definite dulness over the mediastinal region anteriorly with very harsh bronchial breathing over a larger area than normal.

Now let us consider the question of the diagnosis. On the boy's admission the ascites was the most prominent sign and naturally led us to think of the three great causes of that condition—cardiac, renal, and hepatic. Although the heart-sounds were weak there was no evidence of dilatation or hypertrophy or valvular disease. Further, although enlargement of the liver with ascites may be a prominent sign of failing power or failing compensation in the heart we should expect a more generalised œdema and more marked cardiac changes than were present in this case. As regards primary kidney disease the normal condition of the urine and the absence of general dropsy and other renal symptoms led us to exclude this possibility. In the subsequent progress of the case the temporary albuminuria and oliguria could be explained by the pressure of the ascitic fluid. A more satisfactory diagnosis seemed to be indicated by the association of an enlarged liver with ascites and for a time we regarded the case as one of hepatic cirrhosis with impediment to the portal circulation. This, however, was entirely a provisional diagnosis, made rather on account of the absence of positive signs of any other lesion. There was no history of alcoholism, which is of course the commonest cause of cirrhosis, or of syphilis. As time went on there was no further evidence obtained of hepatic cirrhosis—that is to say, the spleen was not enlarging, the appetite was good, there were no symptoms of intestinal catarrh or congestion, and there was no progressive ill-health. Amongst the other abdominal conditions which presented themselves in considering the possible diagnoses was that of chronic peritonitis, which is not unfrequently accompanied by considerable enlargement of the liver. Against this you will remember that the fluid was large in amount and free in the peritoneal cavity, whereas in peritonitis it is usually small in amount and shut off by adhesions. That there is now a certain amount of chronic peritonitis I believe to be extremely probable, but I regard it as the result and not the cause of the ascites. A diagnosis, then, either of hepatic cirrhosis or of chronic peritonitis has not been adhered to because (1) the symptoms in the abdomen were stationary—that is to say, both the ascites and the condition of the liver are practically the same to-day as they were six months ago; (2) the abdominal symptoms appeared passive rather than active, there being an absence of all pain, tenderness, or intestinal disturbance; and (3) our attention was directed to changes in another part of the body.

Let me ask you to assume for a moment that there has been at some previous period inflammation of the lymphatic glands in the mediastinum and that this has led to enlargement and matting together of these glands with chronic inflammation extending into the surrounding structures. In the earlier stages we cannot make out these changes by direct examination, we can only form an opinion from the results of the pressure on air passages, blood-vessels, and nerves. I suggest to you here that there has been pressure on the superior vena cava as manifested by the prominent veins in the arms and neck, the puffiness of the face, and the duskiness in the cheeks, lips, and tongue. Further, I suggest that there has been pressure on the inferior vena cava in the chest as evidenced by the enlarged liver and ascites and pressure on the pulmonary veins as evidenced by the attacks of pulmonary œdema, dyspnœa, and catarrh. Again, I suggest that there has been pressure on the bronchi or on the nerves supplying the bronchi as evidenced by the paroxysmal cough which has been so persistent. I also suggest that there has been an extension of the chronic inflammation to the pleura as evidenced by the presence of coarse pleuritic friction appearing first at the sternum and extending outwards on both sides. Finally, I suggest that there has been a steady increase in the size of this mediastinal growth as evidenced now by dulness on percussion over and around the sternum and the loud conduction through this mass of the sounds from the bronchi lying beneath it. The assumption I have made as to a mediastinal lesion is the only one which seems to explain the various phenomena present in this case.

You are now in possession of the history of the illness

and the physical signs which have led us to form a diagnosis of chronic mediastinitis. I do not ask you to accept that conclusion but to examine and form your own opinion, for in this affection there are no certain signs by means of which we can reach a positive diagnosis. The signs in one case will differ from those in another, there being constant variation according to the incidence of pressure, the direction in which the inflammation spreads, and the size of the new growth. Besides chronic inflammation we have to keep in view the possibility of mediastinal tumour, simple or malignant, although the history of the case rather excludes the latter. It is seldom possible to make a definite diagnosis between a mediastinal tumour and chronic mediastinitis during the life of the patient. We have assumed that the starting point of the disease was in the glands because that is the most common site of origin. In other cases the affection may begin in the pericardium—when it is known as mediastino-pericarditis—or in the pleura or in the lung. The condition becomes one of general inflammatory thickening of the mediastinal tissues, which in time becomes fibrous or semi cartilaginous. The disease runs a chronic course but a progressive one, and death may ensue from pressure on a vital structure or from some complication, pneumonia, &c.

The treatment is general and symptomatic. In this case the ascites has frequently had to be relieved by Southey's tubes. Whenever there is actual discomfort from abdominal distension the fluid is removed and the benefit is always marked. In the early stages the boy had much more energetic treatment and purgatives, diuretics, cardiac stimulants, and mercurial inunction were employed without producing the slightest effect as regards the ascites. Similarly—and this is an important point in connexion with the diagnosis—the paroxysmal cough was not at all affected by local treatment and only very slightly by full doses of nervine sedatives, while the pleurisy is so irresponsive to treatment that we now leave it alone. He is at present passing a quiet, restful existence on a full nourishing diet with plenty of cod-liver oil and iron.

ABSTRACT OF THE

Morison Lectures

ON THE

RELATION OF THE NERVOUS SYSTEM TO DISEASE AND DISORDER IN THE VISCERA.

Delivered before the Royal College of Physicians of Edinburgh on Nov. 1st, 3rd, and 5th, 1897,

BY ALEXANDER MORISON, M.D., F.R.C.P. EDIN.,

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LECTURE II.[1]

Delivered on Nov. 3rd, 1897.

MR. PRESIDENT AND GENTLEMEN,—When we strike the main stream of innervation at the apex of the visceral delta of secretory, mobile, and excretory nerve distribution our task in tracing the current is considerably simplified. Here also, however, the threefold state referred to in the conditions of the ultimate distribution is taken by the triple conditions and their associated questions of medullated and non-medullated fibres and of the ganglion cells regarded as anatomical entities and conglomerate structures.

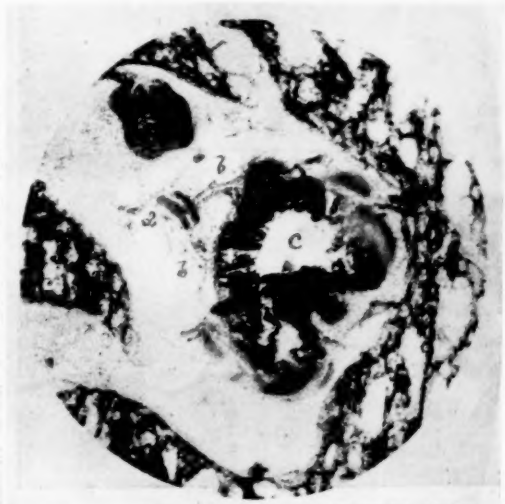
The relation of nerve fibres to ganglion cells, and clusters of cells is of anatomical and physiological interest. The ganglion cell may occur isolated on a nerve or small strand of nerve tissue (Fig. 7) or embedded as it were in the heart of a considerable trunk (Fig. 8) A group of cells may also form a fusiform or irregular enlargement on the course of a nerve larger than the nerve itself, one end—the afferent end—being as it were lost in the enlargement and a fresh trunk issuing from the other or efferent end—afferent and efferent in this sense being used relatively to the ganglion and not to the central nervous system,

FIG. 7.

Ganglion cells and clusters on nerve strands from the hepato-duodenal region of a mouse. *a*, Congeries of cells at a junction. *b*, Issuing strands. *c*, Smaller collections of cells.

from which both, naturally, are efferent (Figs. 9, 10, and 11). Or again a cell or group of cells may lie outside a nerve trunk and have connexions with it on one hand, while on the other it distributes fibres in different, but always

FIG. 8.



Showing the innervation of a bronchus from the lung of a kitten. *a*, Trunk with collection of ganglion cells in it. *b*, *b*, Branches. *c*, Lumen of bronchus.

centrifugal, directions (Fig. 12). The ganglion cell may also apparently occupy a somewhat peculiar position in this wise. The cell or cells may be placed at a considerable distance from the nerve trunk and send axis cylinder processes into

[1] Lecture I. appeared in THE LANCET of Jan. 1st, 1898.

the latter, the ultimate destination of which it may not be possible to trace (Figs. 13 and 14). Finally, the cells may form a corgeries which appears to be placed at the junction of a peripheral centrifugal system (Fig. 7, *a*).

FIG. 9.

Fusiform ganglion (*b*) on a branch of the vagus (*a*) which issues from the ganglion as (*c*). Adipose texture (*d*). Hair of the mouse (*e*) from the heart of which the preparation was made.

The relation of ganglion cells to one another is also a matter of interest but cannot at present be regarded as certainly determined. Kölliker inclines to the prevailing belief that the fine plexuses which surround the cells of peripheral ganglion cells are derived from cerebro-spinal

FIG. 10

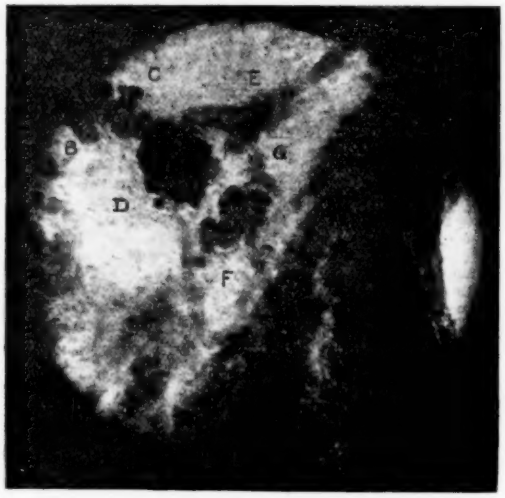
Series of irregularly-shaped ganglia (A, B, C, D, E, F,) on the vagus in the heart of a mouse.

motor fibres of the first class—that is, primary cerebro-spinal motor fibres and not in any instance, as Dogiel insists, from fibres arising from peripheral ganglion cells.[2]

[2] Gewebelehre, pp. 868 and 889.

The question is very difficult to decide on anatomical grounds, for the intertwining of the axis cylinder of one cell with the processes of another in the same group easily induces the belief that the two have active touch of one another. This apparent connexion is shown in a Golgi preparation given to me by Professor Kölliker's curator of which

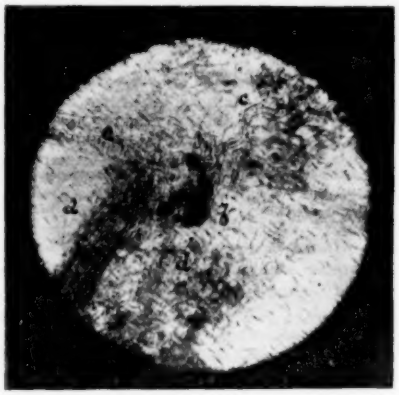
FIG. 11.



Some of the ganglia in Fig. 10 more highly magnified. The strand *G* may be observed to pass through F.

throw a photomicrograph on the screen (Fig. 15). Physiological arguments, on the other hand, intended to solve this question involve the production of so-called facts which not only require the apprehension, but also the comprehension, of the recorder—that is, they require not only to be seen but to be interpreted. The interpretation of all phenomena, and especially of experimental

FIG. 12.



Ganglion (*b*), from the kidney of a mouse, attached to the nerve (*a*) and emitting nerve fibres centrifugally (*c* and *d*). An artery (*e*) is innervated by fibres from *c*.

or artificial phenomena, is admittedly no easy task. Inasmuch, however, as the function of all efferent ganglia in a given stretch of peripheral nerve tissue is probably the same in kind there does not appear to be any insuperable reason why a chain of relay structures should not be in touch with one another as Dogiel considers them

to be. We do not, therefore, appear to be at present in a position to express more than a "pious opinion" upon the subject and do well to avoid too positive a dogmatism. The opinion of the individual as a result of personal observation and reflection may, however, be modestly expressed. The evidence adduced so far—anatomical, physiological, and last, but not least, clinical—inclines me to the belief that successive

FIG 13.

Ganglion (*b*), from the spleen of a mouse, joining the main trunk (*a*) by the strand (*c*)

ganglia and their cells may be connected anatomically and support one another in the execution of a common function while they are at the same time incapable of executing independent reflex actions. Against the latter there is at present a general consensus of educated opinion.

While Dogiel thus appears to stand alone among working histologists of repute in maintaining an arborisation of the axis

FIG. 14.

Crescentically arranged ganglion cells at the point of division of a nerve (*a*) into its branches (*b* and *c*); from the spleen of a mouse.

cylinders of one sympathetic cell upon another of the same group (and, from this fact and his maintenance of the existence of end-nets and loops in the ultimate distribution of nerves, represents a view at one time generally, if not universally, accepted), there appears to be a more general consent that the dendrites of ganglionic cells in the sympathetic system touch, embrace, and convey impulses from other cells of the same series (Fig. 15 A).

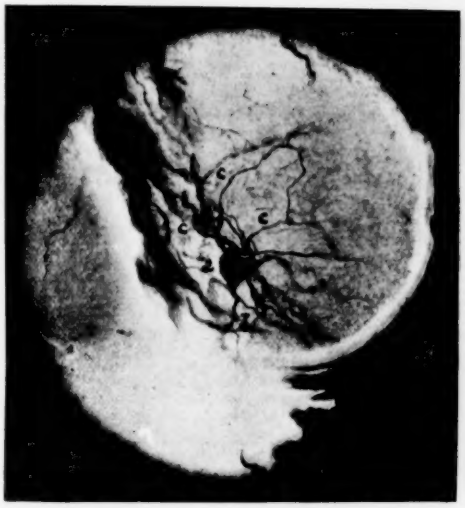
Before leaving the subject of peripheral ganglia I wish to draw attention to a cell system of practical interest in connexion with the heart. It is possible in certain situations to distinguish between what appear to be small penultimate,

FIG. 15.

Golgi preparation from the cervical sympathetic ganglion of a calf. *a*, Neurons. *b*, Neuraxons. *c*, Neurodendrites. *d*, Varicose nerve fibres.

if not ultimate clusters of sympathetic ganglionic cells and the ganglia which occur in or near the efferent stream of the pneumogastric nerve (Fig 16). The cells and groups of cells I refer to have been met with by me in connexion with the heart

FIG. 15A.



Golgi preparation of a neuron and its processes from the cervical sympathetic ganglion of a calf. *a*, Neuron. *b*, Neuraxon. *c*, Neurodendrites. Würzburg preparation.

and appear to be the same as those described by Vignal, who is quoted by J. Dogiel.[3] Groups of cells from two or three to many more may be met with in the fatty tissue at the base

[3] Archiv für Mikroscopische Anatomie, vol. xliii., p. 226.

of the heart and traced in transverse sections into the subepicardium over the chambers. Occasionally they may be observed under the superficial strata of the cardiac muscle. They stain well by the Nissl method and reveal the same

FIG. 16.

Transverse section of the base of the heart of a cat. *a*, Left auricle. *b*, Right auricle. *c*, Aorta. *d*, Pulmonary artery. *e*, Situations in which sympathetic ganglia were found.

configuration and characters as the ganglionic cells of the lateral and collateral sympathetic chains. They may also lie in proximity to subepicardial vessels and the larger nerves, but do not appear to be in direct connexion with

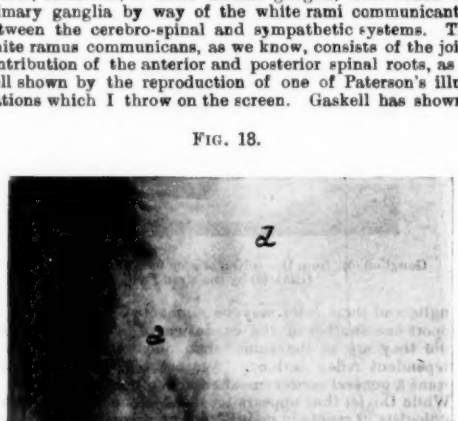
FIG. 17.

Transverse section of the base of the heart of a cat, showing the vagus (*a*), a cluster of sympathetic ganglion cells (*b*), the wall of the aorta (*c*), and intervascular fat (*d*).

either (Figs. 17 and 18).[3] They may be easily distinguished as I have said from the ganglia on nerve trunks which I have already described and of which I show good specimens for comparison with them from the heart of a mouse stained by Sihler's method (Figs. 9, 10, and 11). To the importance of this distinction with reference to cardiac action I shall have occasion to refer again. In following the nerve stream still further upwards and passing by other more or less peripheral trunks, cells, and clusters we reach the more central collections of nerve elements—the so-called collateral and lateral chains. The relation of these on the one hand to the periphery and on the other to the cerebro-spinal centre is a matter of practical moment and scientific interest.

I have no desire to crush all observation into a Procrustean bed of what might be called triplicity, but curiously enough at this point also we have to deal in the main with a threefold state—namely, with nerve fibres which find their bourne in the ganglia, with those which arise in them and with those which pass through or over them. As regards nerve fibres which find their bourne in lateral, collateral, or more distant ganglia, these reach the primary ganglia by way of the white rami communicantes between the cerebro-spinal and sympathetic systems. The white ramus communicans, as we know, consists of the joint contribution of the anterior and posterior spinal roots, as is well shown by the reproduction of one of Paterson's illustrations which I throw on the screen. Gaskell has shown [4]

FIG. 18.



Sympathetic ganglion (*b*) under the epicardium (*c*) in close proximity to a large nerve (*a*) seen in transverse section. Heart muscle (*d*). Highly magnified.

that in transverse sections of the anterior spinal root osmic acid reveals large and small medullated fibres and in certain regions a much larger number of small fibres are to be observed than in others. The chief of these lie between the second thoracic and the second lumbar nerves inclusively. Gaskell further demonstrated that transverse sections of the white ramus presented almost, although not quite, exclusively the medullated fibres of small calibre and only a few of larger size. Finally, he also showed that osmic acid detected in the grey ramus a few medullated fibres of large size and still fewer of small size and that the mass of the grey ramus consisted of non-medullated material.

It can, however, be easily understood how impossible it is to follow by continuous ocular observation with the microscope the course and destination of fibres through so tangled a web as a sympathetic ganglion. It is at this point that the valuable researches of Langley, also of Cambridge, come to our aid. Langley found that about ten milligrammes of nicotine injected into a vein of a cat prevented for a time any passage of nerve impulses through a sympathetic or homologous cell. He found also that the duration of paralysis increased with the dose. He

[4] Journal of Physiology, vol. vii.

argues, therefore, thus: "Since nicotin does not prevent an impulse started peripherally of a nerve cell from producing its normal effect it follows that by stimulating a nerve at various points of its course the place or places where it is connected with nerve cells can be determined."[5] By the nicotine method the course of pilomotor nerves was determined by Langley and also that of some nerves of secretion. If, thus, a nerve in its course be only interrupted from conveying an impulse at certain cellular points upon it it is evident that at such points some change in the anatomical and physiological continuity and character of the nerve must take place. The nerve, in short, may be assumed to arborise upon, and terminate at, the interrupting cell. Hence Langley's nomenclature of "preganglionic fibre" as applied to this portion of nerve, a term in place of which Kölliker suggests that of precellular. The latter seems the more correct, inasmuch as the ganglionic cell as an anatomical entity and not the ganglion as a conglomerate structure is the essential point of interruption. As, again, on the distal side of the interrupted point the possibility of stimulation reasserts itself, it is evident that a "post ganglionic" or "post cellular" fibre springing from the paralysed cell takes up the *rôle* of conductivity. Thus a motor fibre may be shown to terminate in a given ganglion or to pass through it to end in another.

The mode of determining the course of sensory fibres in "dumb animals" rendered still more speechless—by anæsthetics—must be on other lines. It is by the abolition of reflex action that the course of sensory fibres can be determined. The present position of the majority of anatomists, physiologists, and physicians is that the sensory nerve fibres pass from the periphery, without arborising interruption, through intervening ganglia and reach the spinal cord unbroken except in so far as they arise from ganglia on the posterior root.

While peripheral sensory fibres are considered by Kölliker—a point on which I shall have to dwell later—to reach the spinal cord by way of the grey ramus, this connexion of the sympathetic ganglia contains undoubtedly motor—i.e., efferent fibres of ganglionic origin. These, although coursing towards the spinal cord, are none the less peripheral when regard is had to their origin in an extra spinal ganglion. For having elucidated this point we are indebted to Gaskell.[6] This fact emphasises the importance of a knowledge of the embryology of the cerebro-spinal and sympathetic system in its bearing upon anatomical, physiological, and practical medicine.

Remak, whose sagacity time has vindicated in the matter of the local cellular origin of nerve fibres in ganglia, has more recently been supported in his views regarding an important point in the embryology of the sympathetic nervous system. Many modern embryologists, including F. M. Balfour,[7] have derived the sympathetic system from the epiblast, and Balfour describes the lateral ganglia as "at first simply swellings on the main branches of the spinal nerves." Remak believed the sympathetic chain arose separately in the mesoblast and his position has been convincingly upheld by Professor A. M. Paterson in his well-known paper on the Development of the Sympathetic Nervous System,[8] in which by a series of sections, which to all appearance can only be interpreted in one way he has demonstrated that the lateral sympathetic chain arises as a series of isolated points which ultimately become connected with the spinal nerves and with one another, and that the cervical and lumbar portions of the system must be regarded as outgrowths of the lateral chain. In this connexion, also, a point of especial interest to the visceral pathologist is the evolution of the medullary portion of the suprarenal bodies from the sympathetic chain. These embryological conclusions, moreover, support Gaskell's general description of the origin of the visceral nerves.[9]

We have now followed the stream of visceral innervation up to its central origin and it only remains to emphasise a few points so far as they are known—and they are still very imperfectly known, which have a bearing upon the interpretation of the clinical phenomena with which we shall be concerned in the second series of these lectures. Even in the spinal relations of the visceral nerves we find we cannot rid ourselves of the incubus of a triple arrangement. Gaskell has pointed out the very remarkable coincidence in the range of the vesicular column of Clarke and its two cognate centres in the sacral and cervical regions with the outflow of nerves which we have learned to regard as visceral. He has also endeavoured to show from a study of the spinal accessory nerve that we may rationally regard the ramus visceralis as having its roots in the lateral horn and in the column of Clarke. The spinal segment according to him thus consists of an anterior or somatic portion, a posterior portion, and a lateral, visceral or splanchnic portion, which has its roots in the structures named.[10] As regards his views of the relation of the vesicular column to the visceral nerves we shall learn that they are disputable.

It has been already shown that nerve fibres arising in the ganglia and coursing centrally are to be regarded as peripheral nerves. It is, therefore, only with the origin of the nerves which end in ganglia and with those that pass through them—namely, the sensory nerves—that we are concerned in discussing the central relations of the visceral nerves. In Kölliker's diagram[11] the sensory fibres of the viscera are made to return to the cord by way of the grey ramus communicans. But if the white ramus be an offshoot of the combined spinal nerve, as we know it to be, it is simpler to conceive the stream of visceral sensibility as flowing back to the cord by the channel by which it left it, and thus to amalgamate the mechanism of visceral sensations, which we shall study in a subsequent lecture, with sensory phenomena in general.

Sensory fibres, then, having arborised on cells of the vesicular column at once from the latter, strike the direct cerebellar tract and thus reach the cerebellum whence, by probable but not yet fully demonstrated paths, motor visceral impulses may be assumed to reach the small cells in the antero-lateral horn of the cord from which the small fibred medullated nerves arise which characterise the efferent stream of visceral innervation. Pain and other visceral sensations likewise prove that the ascending impulse reaches the cerebral cortex by the usual tracts for ascending sensibility.

A histological examination, of the cerebello-nuclear tract especially, reveals considerable morphological likeness between the cells in these regions and those of the one time quite detached and always out-lying and subordinate sympathetic system. Gustaf Retzius alludes to the likeness of cells of the sympathetic to ganglion cells in the anterior cornua of the cord and Paterson also[12] rests some of his arguments upon the distinctive histological features of the nerve elements in the sympathetic. To myself this morphological likeness was first suggested on examining cells in the grey matter of the inferior cerebellar peduncle and observing their resemblance to those of the posterior root ganglion. But the dominant cell elements in the cerebellum and its related structures generally, such as the olivary bodies, resemble the cells of the sympathetic system so much more than do those distinctive of the higher centres in the cerebrum that one cannot avoid the conjecture that with this morphological likeness there is also associated a functional relationship of a somewhat close order which will be rendered clearer by future research.

The relations of the vago-glosso-pharyngeal and vagus-accessory nerves.—To the vago-glosso-pharyngeal and its associated accessory nerve belong a mixed series of voluntary and involuntary actions. Physiological experiments ending in the definite and brilliant demonstrations of Horsley, Semon, and Risien Russell have localised the cerebral centres for the muscles of phonation. No definite result, however, has yet been reached as regards the cerebral representation of the involuntary actions carried out by the par vagum. That these have intimate relations with the higher centres cannot, however, be questioned. It is not, moreover, in any way remarkable that the more direct tracts of voluntary motion should have been discovered more easily than those of visceral action, for the relations of the involuntary system to volition are much the more complex and involve a consideration of the mechanism of all embracing mind. The proximate centres of vago-visceral action, however, lie, as we know, in the medulla oblongata and with these and their more evident connexions we must in the meantime, as practical men, rest contented.

An advance towards greater simplicity in our conceptions of the sources of these nerves has, however, been made in

[5] Journal of Physiology, vol. xv., 1893, p. 181.
[6] Loc. cit., reprint, p. 6.
[7] A Treatise on Comparative Embryology, 1881, p. 384.
[8] Philosophical Transactions of the Royal Society, B., 1890.
[9] Loc. cit.
[10] Loc. cit
[11] Op. cit.
[12] Loc. cit.

the growing tendency to regard the ascending vago-glosso-pharyngeal root, or fasciculus solitarius of Lenhossek, as their true sensory root, the nucleus ambiguus as the source of their motor fibres and representing the highest medullary portion of the nerve accessory to the vagus, and the so-called "sensory root" of the vago-glosso pharyngeal nerve as a terminal rather than initial nucleus connecting the vagal stream with other portions of the cord and brain.

REMARKS ON THE SURGERY OF THE VAS DEFERENS RELATIVE TO SOME URINARY DISORDERS.

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JUDGING from various communications that have recently appeared both in British and foreign journals an increased experience tends to confirm the favourable view taken of division or resection of the vas deferens in certain urinary disorders in my Bradshaw Lecture.[1] I propose supplementing these remarks on this important subject.

In speaking of partial resection of the vasa deferentia relative to the enlarged prostate it must not be supposed that either it or any other proceeding will meet all forms and degrees of this affection or that its results will be uniform. A moment's consideration at once renders this intelligible. There is a tendency as age advances and when the meridian is passed towards a fibrotic degeneration of the testes and prostate in which the latter gradually ceases to be largely glandular and becomes transformed more or less into masses of unstriped muscular fibre and connective tissue. When this condition is far advanced the part is only amenable to that kind of treatment which applies equally to other fibrous growths wherever they are situated within the body. Castration and vasectomy may both alike fail under these circumstances and some form either of prostatectomy or prostatotomy, should the necessity arise, is more likely to be successful and permanent. Similarly in carcinoma of the prostate we have a condition where no good results are to be expected though it must be said that in one or two instances where division of the vasa was practised and the growth eventually turned out to be a cancer it does not appear that any harm was done. Excluding, however, such exceptional cases as these which we are now learning to discriminate and allowing for the degree of fibrotic degeneration that the parts undergo there can be no doubt that in vasectomy we have a valuable and fairly certain means of removing the distress that an hypertrophied prostate in the usual acceptation of the term occasions. The weight of evidence in reference to this is I think now sufficiently conclusive and may be safely acted upon. Further it tends to show that if vasectomy fails castration is not likely to do otherwise, though the selection of the former does not necessarily preclude a subsequent trial of the latter.

There can be no doubt that castration is a serious undertaking in the case of many persons of advanced years enfeebled by illness as compared with vasectomy and the risk connected with it is not inconsiderable. On the other hand if vasectomy is performed under certain conditions it is not open to these objections. As prominent amongst the latter I would again urge that though the resection of a part of the seminal ducts is a minor proceeding it is better not to operate upon both canals simultaneously but on two separate occasions with a short interval between. That physiological effects of an active kind not limited to the urinary organs sometimes follow upon the simultaneous removal of the testes, and less rarely on the simultaneous resection of the vasa, there can from recorded cases be no doubt of. In some they have taken the form of cerebral disturbance and in others of mental decay which have marred the good effects of any structural changes in the prostate which have also followed. I have neither seen nor heard of such results as these being observed where both vasa were not divided at the same time. Excision of these ducts is, however, a slower mode of effecting prostatic shrinkage than castration as it entails the induction of a double process of atrophy, that is to say, by means of an atrophy following upon a preceding one. In this lies, I believe, in a great measure its safety. Whilst improvement usually commences at once on the completion of the operation and steadily advances it is sometimes several weeks and even months before the full amount of benefit is reached. In a recorded case[2] of suprapubic fistula following an operation where double vasectomy was performed for the purpose of causing a diminution in the size of the prostate and the restoration of the natural passage for the urine over four months elapsed before the fistulous opening quite closed and urination was again normal. The patient was sixty-six years of age and made a complete recovery, though no further treatment was employed. Other instances have come under notice where the maximum amount of good was not reached for even longer periods than this.

In the following instance progress was slow, but it would have been impossible to have brought about so much comfort with a prospect of more by any other means. In November, 1895, I saw a man, aged seventy years, who, in addition to glycosuria, was suffering from a large prostate with much obstruction and residual urine. In spite of treatment with the catheter and other means his symptoms increased. Early last year (1897) the frequent calls to attempt micturition and the great difficulty and pain in using the catheter and the general distress induced me to advise vasectomy. The first vas was divided on April 13th and the second on May 11th; from these dates he slowly but steadily improved. In a letter to me (December) he writes: "I certainly am very much better than I was and so long as I am quiet and able to carry out my regular treatment I get on very comfortably." He uses his catheter five or six times in the twenty-four hours and can now void some urine voluntarily. I have good reason for believing that he will still further improve. As the fibrotic condition of the parts was much advanced at the time of operation it would have been better if it had been performed earlier.

And this brings me to remark that having regard to the time often occupied by the prostate before it assumes a form or a size calculated to seriously obstruct micturition so as to necessitate operative interference the sudden and active induction of its atrophy may be open to objection for reasons which may possibly be explanatory of what I have referred to as more frequently following upon simultaneous removal of both testes. We are only, as it were, beginning to study in view of their application for therapeutical purposes the physiological effects of certain changes produced by the addition to, or withdrawal from, the body of certain organised parts or materials. In the case of the former we have some evidence of this in effects produced by the introduction of toxins and animal alkaloids, whilst the latter may be illustrated by what has been demonstrated as following removal of the thyroid gland. On all grounds, therefore, I prefer endeavouring to bring about the changes desired in the prostate in the way I have always advocated. The cases in which benefit has followed vasectomy have been those where the symptoms were induced directly or indirectly by senile enlargement of the prostate gland. Amongst these we may include very frequent and painful micturition, difficulty with, and frequent use of, the catheter with much spasm and hæmorrhage, and the more severe forms of cystitis arising from obstructed micturition. In some of these instances the division of a single tube has proved sufficient. Further, in certain recurring cases of stone depending on sacculation or pouching of the bladder complicating prostatic hypertrophy the induction of atrophy of the latter has afforded some excellent results. The probable explanation is due in all these examples to the shrinkage the enlarged gland undergoes and consequently the greater freedom with which urine is passed or the catheter is introduced. In all cases where vasectomy is practised before both tubes are divided it is well to ascertain that the bladder is quite free from stone. I have met with more than one instance where a small calculus passed after a vasectomy which had previously been undetected by a sound. Probably it had been concealed or pouched by the large prostate and had escaped spontaneously as the latter decreased in size.

Further, the enlarged prostate is often a serious detriment to the kidneys by establishing a back pressure of the urine which can be most injurious to these organs. I refer to that class of cases where the urine excreted under pressure is constantly of a low specific gravity. Here, as Sir James

[1] THE LANC Dec. 12th, 1896.

[2] Bradshaw Lecture.

Paget[3] observed, "there will be danger from the most gentle catheterism." I have seen low densities in urine rise steadily to normal and remain so after the tension has been taken off micturition by the induction of atrophy of the prostate. It is not unlikely that we may find in vasectomy another means for removing intra-renal tension. It must be remembered that it sometimes takes but very little to render a prostate obstructive. Sir Henry Thompson pointed this out in connexion with his important studies on the pathology of this gland. I have seen enough to convince me that a small amount of shrinkage, provided it takes place in or indirectly affects the right spot, makes all the difference as to whether a man leads a life of comfort or not.

It is not unlikely that this operation will be extended to other disorders of the urinary organs. Though the normal function of these ducts is that of conveying the seminal fluid from the testes to the vesicles and prostatic urethra they are equally capable of transmitting micro-organisms in both upward and downward directions. In this sense they may therefore be regarded as distributors of disease. Some years ago, soon after I had published a short article[4] on division of the vas deferens relative to prostatic hypertrophy, I saw a delicate-looking young man with a strong tuberculous family history with a nodule in his left testicle remaining after an acute gonorrhœa. This nodule was deemed to be tuberculous or likely to become so. The question then raised had reference more especially to the removal of this by operation on the ground of its suspicious nature. The urine was healthy and so was the opposite testicle and its tubes. Nor was I able to discover any evidence of deposit so far as the finger could reach either in the vas or the prostate. The patient, who had had some medical education, was anxious that either the nodule or the testis should be removed. I did not feel disposed to recommend either course. Having regard to the fact that the disease appeared limited to the nodule and that any infection would probably pass along the canal of the vas deferens I proposed to excise a portion of the latter. This was done and the wound healed in a few days. A year afterwards it was found that the testis and nodule had both completely atrophied and no signs of tuberculous infection could be detected. The patient's health and sexual powers remain unimpaired.

The second group of cases of transference of infection through these ducts may be illustrated by the inflammations that take place of the testes and tubes occurring in connexion with some cases of prostatic hypertrophy where catheterism is necessary and often difficult. This is a complication which when frequently repeated seriously adds to the gravity and pain of these disorders. Early in the year 1896 I saw a man approaching seventy years of age, otherwise in good health, who, in addition to much prostatitis, repeatedly suffered from most painful epididymitis in one or both organs, though sexual power had ceased for some years. He was dependent on the catheter and these attacks had been going on for some months, almost entirely confining him to bed and preventing him attending to his business. I divided his vasa for him with great relief so far as his prostatic symptoms generally were concerned and since this was done he has had no further trouble with his testicles.

I have tried various methods for resecting the vasa. The simplest appears to consist in rendering the vas superficial by manipulation of the scrotum and making a small incision over it. It can then be easily seized with a Spencer Wells' clamp forceps and brought to the surface, where it is precisely isolated by a little scraping and a blunt hook or aneurysm needle passed beneath it. A loop is included by a silk ligature and the free portion removed by scissors. To ligature the duct is insufficient, it being necessary to resect a portion of it. After the loop has thus been removed the stump is returned with the ligature cut short and the little wound in then closed with a suture or collodion. Union usually takes place in the course of a day or two. In this way the operation can be performed quickly and almost bloodlessly.

In concluding these remarks I need hardly suggest that patients should invariably be made to understand, whatever their ages may be, that though division of one duct does not interfere with the function of generation the subsequent section of the second duct entirely and permanently extinguishes any sexual power that the individual may have previously possessed. The operation may therefore be said to be restricted to that period of life and to coexisting circumstances when the genital function relative to the urinary disability is ceasing or has ceased to be a matter for consideration. The cases must be extremely rare where in earlier years the damage occasioned by the hopeless loss of all control over this function calls for such measures as vasectomy would undoubtedly supply. Further, I would repeat in connexion with the latter operation as well as with other procedures of a like nature that they are only applicable to grave varieties of prostatic disease and other complications arising out of them. When we recognise how many elderly men carry on long and useful lives who are more or less dependent upon the aid their catheter affords it is hardly necessary to say that such measures can only apply to the exceptions and not to the rules. The latter are already adequately provided for, whilst in the interests of the former all proved methods either of cure or of relief must receive our careful and unbiased consideration.

Lower Berkeley-street, W.

[3] Clinical Essays, edited by Mr. Howard Marsh.
[4] Brit. Med. Jour., Sep. 23rd, 1893.

A NOTE ON CERTAIN POINTS OF TECHNIQUE.

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(1) ON A RAPID AND CONVENIENT METHOD OF STERILISING SYRINGES AND SURGICAL INSTRUMENTS.

THE ordinary methods of sterilising syringes or instruments by either prolonged boiling in water, or prolonged soakage in antiseptic solutions, are unsatisfactory in several respects. In the first place both these methods of sterilisation involve a considerable loss of time; and, in the second place, the repeated application of these methods is very destructive both to surgical instruments and also to the asbestos plungers which are employed in syringes. These defects, which are inseparable from the ordinary methods of sterilisation, can be very simply avoided by employing as our sterilising agent olive oil at from 160° to 180° C. instead of water at 100° C. In order to obtain complete sterilisation by this method it suffices in the case of a surgical instrument to dip it for an instant into the hot oil. In the case of a syringe it suffices to fill in the syringe twice with oil at the stated temperature. The temperature may be determined either by a thermometer, or if a thermometer is not at hand by a piece of ordinary bread-crumb. It will be found that the bread-crumb will become *brown* and crisp as soon as a temperature of from 160° to 180° C. is reached. This method of sterilisation has been found very convenient in the ordinary routine work of the laboratory. It will probably also prove of service in surgical practice. It is especially applicable in cases where there is no time for the prolonged soakage of instruments and further in cases where an instrument has become accidentally contaminated in the course of an operation. The method of employing hot oil as a sterilising agent is also a method which would appear to be readily applicable in ordinary practice for the sterilisation of syringes. The olive oil may be heated in a spoon over a spirit lamp, and the heat may be tested by the proposed bread-crumb thermometer. It is to be noted that the method is not applicable to the sterilisation of indiarubber tubing.

The above method of sterilisation has been tested by dipping instruments into, and filling in syringes with, putrescent fluids from manure heaps and cultures which contained very resistant spores. The test-cultivations which were made from these instruments and syringes after the sterilising operations which have been described remained in all cases absolutely sterile. An incidental advantage of the method of sterilising syringes by hot oil is that if the needles are sterilised in the hot oil before they are replaced in the case they are thereby effectually protected against rust.

(2) METHOD OF EMPTYING AIR OUT OF A SYRINGE WITHOUT CONTAMINATING THE OUTSIDE OF THE SYRINGE WITH THE CONTENTS.

A convenient way of effecting this object is the following. A small bottle of any strong antiseptic solution is covered over with one of the rubber caps which are fitted on to test-tubes to prevent the drying up of bacterial culture media.

This bottle is held cap downwards and the needle of the syringe which is to be emptied of air is thrust through into the antiseptic solution. The piston of the syringe may then be pushed home until all the bubbles have been expelled without any fear of contaminating the outside of the needle or syringe. It is unnecessary to sterilise the outside of the rubber cap before puncturing it with the hypodermic needle, for the needle will be again quite sterile when it comes out from the antiseptic.

(3) METHOD OF PUTTING UP ANTITOXIN OR BACTERIAL VACCINES IN SUCH A WAY THAT THEY MAY BE DIRECTLY DRAWN OFF IN AN ASEPTIC MANNER INTO A HYPODERMIC SYRINGE.

The method in which antitoxin is usually put up appears to be faulty in two respects. First, it is somewhat difficult to sterilise the chink between the rubber bung and the neck of the bottle. Secondly, inasmuch as it is impossible to get the needle of the syringe down to the bottom of the narrow mouthed bottles which are employed it becomes necessary to pour out the fluid into some shallower vessel. This involves as an incidental inconvenience the sterilisation of the vessel which is employed for receiving the antitoxin.

These inconveniences are perhaps most simply avoided by putting up the antitoxin in bottles which are fitted with stout close-fitting rubber caps in lieu of the usual rubber bungs. After the rubber caps have been placed in position they are to be rendered perfectly air-tight by dipping the neck of the bottles into a vessel containing sterilised and melted paraffin. The contents of the bottle can then be drawn off as follows. First, the outside of the cap is re-sterilised by dipping it either into a hot antiseptic solution or into the hot oil which has served for the sterilisation of the syringe. Holding the bottle still in the inverted position the rubber cap is now to be pierced with the sterilised needle of the hypodermic syringe. The puncture which is thus produced serves only to admit air to the bottle. The needle is therefore now withdrawn and it is re-introduced into the antitoxin by puncturing the cap a second time. The contents of the bottle are now simply drawn off into the syringe.

This method of putting up antitoxin has now been tested in practice for some considerable time. It has answered satisfactorily even in the case of the antitoxin which has been sent abroad. The method has also been employed with success for putting up the bacterial vaccine, which has been used in connexion with several considerable series of typhoid vaccinations. In these cases the bottle of bacterial vaccine was fixed in an inverted position in a clamp and the syringe was refilled time after time by simply puncturing through the indiarubber cap. When a sufficiency of vaccine had been drawn off the outside of the cap was re-sterilised and was then recoated with paraffin.

(4) METHOD OF PREPARING ASEPTIC PHYSIOLOGICAL STYPTICS.

The proposal which I put forward several years ago to utilise *physiological* and painless, in lieu of *escharotic* and painful, styptics in the arrest of hæmorrhage[1] has not yet been practically exploited. None the less physiological styptics are calculated to be of eminent utility not only on the battle-field, but also in the minor surgery of the household, and above all, in the treatment of severe epistaxis and hæmophilic bleeding. In these last cases, at any rate, the mediæval methods of arresting hæmorrhage by means of escharotic styptics would appear to be now no longer admissible.

So far as this neglect to take advantage of the proposed physiological styptics is not imputable to a lack of enterprise on the part of the manufacturing chemist, it has been, no doubt, due, first, to the fact that the method of preparation which was proposed was not a method that offered any absolute guarantee for the aseptic condition of the styptic; and, secondly, to the fact that no convenient method of testing these styptics was proposed.

The following method of preparing a physiological styptic would appear to offer the required guarantee for the asepticity of the preparation. Fresh and finely-minced thymus gland is extracted for from twelve to twenty-four hours with from ten to twenty times its weight of a solution containing 1 per cent. of carbolic acid and 1 per cent. of common salt. An addition of 0·5 per cent. of calcium chloride *cryst.* is to be made to this fluid after it has been strained through a piece of sterile muslin. Lastly the styptic solution is rendered very faintly alkaline. It is to be shaken up before use and is to be mixed with the effused blood in the proportion of about one part of styptic to ten of blood.

A less potent but an always accessible form of styptic may be very simply made by rubbing up a little finely pulverised chalk, preferably precipitated chalk (but prepared chalk or even whiting will do) with a very small quantity of vinegar or a trace of hydrochloric acid. This forms a very convenient application to bleeding gums or shaving cuts. It is also a suitable form of styptic to apply to any surface from which *actual* or *serous hæmorrhage* is taking place.

(5) SIMPLE METHOD OF TESTING THE EFFICACY OF ANY PHYSIOLOGICAL STYPTICS.

The efficacy of any physiological styptic may be conveniently tested upon such a drop of blood as may be pressed out from a prick at the base of the finger-nail. The blood is to be received upon a finger-nail which has been previously warmed by passing it through a flame or by holding it above a lamp. A minute drop of the styptic (it is preferable that the styptic should be previously warmed to blood heat) is then introduced into the drop of blood. The course of coagulation in this drop is to be compared with the course of coagulation in a control drop of blood obtained from the next finger. If the styptic possesses a satisfactory degree of efficacy it will then be found that a *definite clotting will be obtained* in the drop of blood which has been operated upon *after the lapse of a full minute*. In this interval no sign of clot will be obtained in the control drop. On the contrary it will be found that in practically all cases the control drop will dry up without showing any sign of clotting.[2]

(6) METHOD OF WARMING OR COOLING COAGULATION-TUBES FOR BLOOD COAGULABILITY ESTIMATIONS TO A STANDARD TEMPERATURE.

The method of determining the coagulability of the blood which was proposed by me[3] for clinical uses consists in filling in a series of six or eight capillary coagulation-tubes with blood which is obtained from the tip of the finger. In order to secure that the results which are obtained by this method should be comparable I proposed, first, that the coagulation-tubes of an internal diameter of 0·25 mm. or $\frac{1}{100}$ in. should always be employed[4]; and, secondly, that the blood coagulability estimations should always be undertaken at a temperature of half blood heat (18·5° C. or 66° F.).[5] When the temperature is either considerably above or considerably below the suggested normal it becomes necessary to warm or cool the coagulation-tubes. It was originally proposed that this readjustment of temperature should be effected by placing the tubes in contact with the outer wall of a vessel of cold or warm water.[6] Further experience has, however, shown that the readjustment of temperature may be effected in the following simpler manner.

Rubber caps are first drawn over the ends of the coagulation-tubes. The tubes are then placed upright in a tumbler of water at a temperature of 18·5° C. When they have taken on the exact temperature of the water, the tubes are taken out of the tumbler, and the outside of the rubber caps is carefully dried. The caps can now be removed without any fear of water getting into the interior of the tube. The tubes are now filled in with blood from the finger. In view of the fact that thick glass is employed in making these coagulation tubes no further precautions need in an ordinary case be taken with regard to the temperature. An exception to this rule has, however, to be made, first, where the temperature of the surrounding air is either very hot or very cold, and, secondly, where—as for instance in hæmophilia—we are dealing with cases in which blood coagulability is inordinately reduced. In cases of this kind it is essential that the blood should be kept at the standard

[1] THE LANCET, Feb. 25th, 1893, p. 435, and Brit. Med. Jour., 1891.

[2] The best way of detecting traces of clot in a drop of blood is to wipe off the drop with a clean handkerchief or with a piece of filter paper. If any coagulation has taken place shreds of fibrin will be detected on the surface of the fabric after the fluid part of the blood has diffused away.

[3] THE LANCET, Dec. 2nd, 1893, p. 1390. Brit. Med. Jour., July, 1893, and February 1894.

[4] These can be obtained from Mr. A. E. Dean, jun., 73, Hatton-garden, E.C.

[5] This temperature was selected because it approximates very closely to the ordinary temperature of dwelling rooms and hospital wards in temperate climates.

[6] Brit. Med. Jour., 1894.

temperature during the whole course of the observation. This may readily be done by returning the tubes to the tumbler of water after they have been filled in with blood. This can be done without any danger of introducing water into the blood if, in conformity with the prescribed routine, the blood has been withdrawn some little distance up from the orifice of the tube. The intervening bubble of air will then not only prevent the mixture of any water with the blood, but it will further so increase the friction that the column of blood will not be driven further up the tube by the pressure of the surrounding water.

Netley.

PAROXYSMAL HYPER-ACIDITY IN CHILDREN SIMULATING MIGRAINE.[1]

BY W. SOLTAU FENWICK, M.D., M.R.C.P. LOND.,
PHYSICIAN TO OUT-PATIENTS AT THE EVELINA HOSPITAL FOR SICK CHILDREN; PHYSICIAN TO THE LONDON TEMPERANCE HOSPITAL.

CHRONIC disorders of the stomach accompanied by an excessive secretion of the gastric juice are rarely encountered below the age of puberty. Intermittent hyper-acidity, on the other hand, does not appear to be an uncommon phenomenon in early life. Thus Rossbach,[2] Rosenthal,[3] Lépine,[4] and others have described cases in which severe headache and other cerebral symptoms were associated with an abnormal secretion of hydrochloric acid and seem to consider that in many instances at any rate the gastric disorder was the primary complaint. In this country cases of a similar nature are occasionally observed, but the disease appears to be much less common than on the Continent or in America, for out of some 3000 consecutive cases of disordered digestion in children which I have examined only five exhibited symptoms similar to those of migraine associated with hyper-acidity of the gastric juice. Although the disease is therefore a rare one it presents so many features of clinical interest that it seems to merit a more detailed description than is usually accorded it.

Symptoms.—The disorder may commence at any period of childhood, but is most common between the ages of four and ten. As a rule an attack is immediately preceded by a period of unusually good health, but occasionally the child suffers from malaise with want of appetite and constipation for several days before the headache commences. Mental and physical fatigue are the chief conditions which appear to induce an attack, although over-indulgence in sweets or prolonged excitement is sometimes responsible for its development. An attack usually begins with severe headache which makes its appearance either in the early morning or shortly after the midday meal. At first the pain is confined to the frontal or occipital region, but it soon becomes diffused over the entire cranium and is often accompanied by tenderness of the scalp. Any attempt to stand upright, to move the head, or even to cough, increases the pain, and the child often screams out at intervals as though he were suffering from meningitis or becomes partially aphasic. After the lapse of an hour or two the patient experiences a burning pain in the epigastrium and will flex the knees and clasp the hands over the abdomen in his efforts to obtain relief. As the pain increases in intensity the stomach and intestines become distended with gas and pyrosis attended by a scalding pain behind the sternum is experienced from time to time. Flatulent eructations, nausea, and giddiness now supervene and the child suddenly sits up and empties his stomach without apparent effort. The act of emesis is followed by pain in the throat and choking and leaves a sour and unpleasant taste in the mouth. In some cases both the headache and abdominal pain subside immediately the stomach has been emptied, so that the patient falls asleep and awakes in a few hours quite restored to health. As a rule, however, retching and vomiting continue for many hours and convalescence is not established for two or three days. During the painful crisis the face and extremities are cold and the patient often shivers or complains of numbness and tingling in the fingers or feet. The pulse is small and often abnormally slow, especially at the commencement of the attack. As a rule the temperature of the body is depressed, but occasionally the thermometer in the rectum may register 100° or 101° F. for a few hours. In most cases the bowels are confined, but sometimes the initial vomiting is replaced by a sharp attack of diarrhœa, which appears to exert the same beneficial influence upon the cerebral symptoms. As long as the disorder persists the appetite remains in abeyance, but thirst is often a marked symptom of the case. In the early stages the tongue is clean and moist, but if the vomiting proves severe the organ soon becomes coated with a creamy fur. It is an interesting fact that at the commencement of an attack the administration of a tumblerful of tepid water often relieves both the headache and epigastric pain and in many cases this simple procedure is sufficient to effect an immediate cure. At a later stage, however, the ingestion of water merely excites vomiting. The vomit varies in character according to the time of day at which the emesis commences. If the attack originates in the early morning when the stomach is devoid of food the ejecta consist of a greenish-yellow fluid mixed with mucus; but should the vomiting occur after the midday meal particles of food are abundant and exhibit signs of partial digestion. In each case the total acidity of the ejecta is unduly high from the presence of an excess of free hydrochloric acid. If the attack follows the mid-day meal the vomit often possesses an acidity equal to from 0·45 to 0·52 per cent. hydrochloric acid; but when it ensues in the early morning the total acidity of the gastric contents may not exceed 0·38 per cent. hydrochloric acid. If the vomiting continues after the stomach has been emptied the ejecta gradually lose their acidity until at length they consist entirely of alkaline and bile-stained mucus. After the disorder has subsided the secretion of hydrochloric acid is found to be normal.

Diagnosis.—Unless the vomit is submitted to a chemical examination the disease may easily be confounded with migraine or recurrent catarrh of the stomach. It may be observed, however, that migraine usually occurs at a later period of life than paroxysmal hyper-acidity and that its onset is preceded by ocular phenomena which are absent in the latter disorder. The headache also is never relieved by drinking tepid water nor is severe epigastric pain an ordinary symptom of the complaint. Lastly, the ejecta never contain any excess of free hydrochloric acid. Gastric catarrh is an extremely common complaint in infancy and childhood and closely resembles paroxysmal hyper-acidity in many of its symptoms. The headache, however, is much less violent, epigastric pain is either slight or absent altogether, while nausea and retching constitute the chief features of the complaint. The vomit consists entirely of bile-stained mucus and never exhibits any trace of free hydrochloric acid.

Treatment.—All conditions which tend to excite an attack must be avoided as far as possible and in severe cases the child should be kept from school and be encouraged to indulge in plenty of exercise in the fresh air. The meals should be taken at regular intervals and all fatty and saccharine articles be excluded from the dietary. If the bowels are confined they should be regulated by means of some simple laxative, such as cascara, senna, sulphur and guaiacum, or compound liquorice powder. At the commencement of an attack the child should be put to bed and the room be darkened. In many cases an emetic of ipecacuanha wine or sulphate of zinc relieves the headache more quickly than anything else. Occasionally a full dose of antipyrin or phenacetin will cut short an attack if administered at its commencement. If vomiting has already taken place lavage of the stomach can be promoted by making the patient drink warm water containing a small quantity of bicarbonate of sodium and afterwards exciting vomiting by tickling the back of the throat. The employment of the stomach-tube for this purpose is never required. In those cases where catarrh of the stomach ensues from the irritant effects of the acid secretion and the child continues to retch for many hours an enema of chloral and bromide of potassium may be administered. Among the various remedies which have been tried for the purpose of preventing a recurrence of the disease bromide of potassium combined with liquor potassæ has proved of the greatest value.

Devonshire-street, W.

[1] Abstract of a lecture delivered at the London Temperance Hospital, Nov. 25th, 1897.

[2] "Gastroxynasis," Deutsches Archiv für Klinische Medicin, 1884, s. 383.

[3] "Vomitus Hyperacidus," Berliner Klinische Wochenschrift, 1887, s. 505.

[4] "Gastroxie," Société Médicale des Hôpitaux, 1885, p. 134. See also Snow, Archiv für Pediatrie, 1893, p. 986.

A CASE OF TETANUS SUCCESSFULLY TREATED WITH ANTITOXIN.

BY W. TYRRELL BROOKS, M.A. OXON., M.B. LOND.,
SENIOR PHYSICIAN TO THE RADCLIFFE INFIRMARY, AND LITCHFIELD LECTURER IN MEDICINE IN THE UNIVERSITY OF OXFORD.

A LADY, aged twenty-four years, whilst away for a holiday met with a bicycle accident on Sept. 9th, 1897, which caused a contused wound on the left thumb, the wound containing a quantity of dirt from the road on which she fell. The wound was treated with bread poultices and then dressed with iodoform and did not cause any uneasiness to the patient. On her return to Oxford there was a definite history of chill from exposure and on the tenth day after the accident she first noticed stiffness of the muscles of the jaw. On the following day I saw her and examined the wound which I found covered with a crust of iodoform and dried pus beneath which was a pale, unhealthy granulating surface. She complained of stiffness in the masseters and difficulty in mastication. The lower jaw could be opened voluntarily to the extent of an inch but not without difficulty. The wound was at once treated with hot boracic fomentations. These were kept up for a week or ten days and I may here add that no further trouble was caused by the wound, which healed some days before the attack of tetanus terminated. The patient was ordered a fluid diet, five grains of calomel, and a chloral and bromide draught. On the following day it was evident that tetanus had developed, the masseters were firmly contracted and there was spasm of the retractor muscles of the head, whilst on getting the patient out of bed general muscular spasm followed. Treatment with antitoxin was at once commenced, 10 c.c. of the dried serum (prepared by the Pasteur Institute by a modification of Roux's method) being injected at 12 A.M., a second similar injection being given at 6 P.M. The muscles of deglutition were not affected and the patient took fluid nourishment freely. On the 22nd there were frequent spasms of the muscles of the upper trunk and arms which came on at intervals of an hour and which when severe spread to the legs. In the intervals between the spasms there was stiffness in the muscles of the left scapula and the patient lay with the head rigidly retracted. The facial muscles were involved in the spasm, causing a marked alteration in the patient's expression. Swallowing was difficult during the day owing to spasm of the pharyngeal muscles. The patient sweated profusely throughout the day and was in great pain. Two injections (each consisting of 10 c.c. of antitoxin) were given during the day. On the 23rd the spasms were more frequent and general, opisthotonos occurring during the more severe spasms. Two injections of antitoxin were given. On the 24th and 25th the symptoms remained unaltered except that the spasms were more frequent. Two injections of antitoxin were given each day. On the 26th the only alteration in condition was the presence of risus sardonicus, which appeared with each attack of general spasm, passing off in the interval. There was also constant numbness of both legs, but most marked in the right. Two injections of antitoxin were given during the day. On the 27th the condition remained unaltered. Two injections of antitoxin were giving during the day. On the 28th the patient appeared worse, the general spasms occurring with great frequency and the pain from them not being controllable by morphia. Menstruation appeared on this day. On the 29th there was slight improvement, the spasms lessening in frequency, and from this date to Oct. 1st, when the antitoxin treatment was discontinued, there was gradual amelioration in the patient's condition. In all the patient had seventeen injections of antitoxin, each consisting of 10 c.c. After Oct. 1st the patient's history was uneventful. There were for several days attacks of muscular spasm which were controlled by morphia. The patient gradually began to recover voluntary movement in the muscles and the masseter spasm relaxed sufficiently to allow finely minced foods to be taken. The only new symptom present during early convalescence was diplopia, which continued for four days. Tendon reflexes were greatly exaggerated and ankle clonus was present on both sides. Ankle clonus persisted until Oct. 17th. On the 20th the patient had sufficient control over the legs to allow her to walk a few steps. From this time there has been steady improvement and at the present date (Dec. 17th, 1897) the patient can walk a couple of miles at a stretch and considers herself quite in her normal health. I may add that in addition to the injections of antitoxin morphia was used freely during the acute part of the illness with large doses of chloral hydrate and bromide of potassium at night.

Oxford.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF RAPID DEVELOPMENT OF SYMPTOMS OF BELLADONNA POISONING FROM USE OF SULPHATE OF ATROPINE EYE DROPS.

BY WORSLEY J. HARRIS, L.R.C.P. LOND., M.R.C.S. ENG.

I WAS called hurriedly one Monday afternoon to see a woman, aged thirty years, who had been taken suddenly ill with giddiness and fainting attacks accompanied with peculiar oppressed feelings at the heart. I found the patient lying on the bed in a flushed and excited state with cold extremities, quick pulse, and feeling shivery, sick, and giddy. She had dryness of the tongue, lips, mouth, and throat and a great craving for drink. The pupils were widely dilated and the urine had been very scanty though she felt a constant desire to micturate. She informed me that she had been perfectly well the week before until on the Saturday (the day before she was taken ill) she went to an oculist about her eyes. The oculist being away his colleague had prescribed for her. She was given for the eyes atropine drops (four grains of sulphate of atropine to one ounce of distilled water), two drops every four hours, and internally she was ordered biniodide of mercury (two grains, make fifty pilules, three to be taken every four hours). She first used the drops and the pilules that night and continued to do so throughout Sunday. She began to feel slightly all the above symptoms on Sunday evening, especially the oppression at the heart and giddiness, which became particularly bad after taking food. Diagnosing the case as one of acute belladonna poisoning I caused the drops to be discontinued (as well as the pilules) for the time being as the pupils were widely dilated. She was ordered to rest quietly in bed and to have plenty of warm and good liquid nourishment frequently and in small quantities with a little alcohol, and a mixture was prescribed containing digitalis, nux vomica, and aromatic spirit of ammonia. This steadied the heart and increased the flow of urine and she was much better on the next day but complained of nausea. For the nausea she had a mixture of liquor bismuthi, solution of bimeconate of morphine, dilute hydrocyanic acid, &c., with which she was pleased, as one dose she averred took away all sickness. On the following day she was well enough to go to see the oculist and told him how ill she had been. He ordered the drops once a day and only three pilules a day.

I relate this case thinking it may be of some little interest in showing how rapidly such symptoms may develop in some people from a very slight cause. The patient was suffering from syphilitic iritis. For this she had the atropine drops and the mercury iodide; but either from an inherent susceptibility to the drug or from her being more susceptible from weakness due to the syphilitic poison her system could not withstand even atropine drops in ordinary doses, but only in the very weakest strength. I can only call to remembrance seeing one other case with symptoms of decided belladonna poisoning from the use of atropine drops, but that was in a child who had used weaker drops for some two months and more regularly every day.

Hastings.

NOTE ON THE PREVENTION OF LARGE MAMMARY ABSCESSES BY EXPRESSION OF THE MILK.

BY WILFRID B. WARDE, M.B., L.R.C.P. LOND., M.R.C.S. ENG.

IN THE LANCET of Feb. 29th, 1896, Mr. Walter G. Spencer wrote under this heading. I was interested in what he wrote, first, because I had learned the method he mentions in my student days and, secondly, because I had in many instances been able to apply it most advantageously. In the last four years I have been applying this method of expression to instances of a quite common type of case which must be familiar to all. I refer to cases in which a defective breast is unable to meet the demands of lactation. Many women have imperfectly developed breasts; usually one breast is smaller than the other with an ill-developed nipple. Often both are defective. In these cases the breast at once becomes painful and indurated. The induration is due chiefly to inflammatory thickening and only secondarily to retention of milk. But the retention determines the formation of abscesses. In all the cases of this kind I have met with expression from the circumference has produced good results. Usually only a small quantity of milk comes away and the breast remains very hard. But if this be repeated every day the hardness rapidly lessens and all induration will have disappeared in about ten days. In no case did an abscess form. Recently I have seen a case of such interest as to be worth recording and one that illustrates this question remarkably well.

A woman, aged twenty-six years, a primipara, had a month previously weaned her child. The breasts were rubbed and bandaged and gave her no trouble. The patient was positive that both were soft and free from pain till the present illness commenced. The room she slept in was very cold and damp. During the night her baby cried a great deal and finally went to sleep on the mother's left arm. The mother herself fell asleep with the left side of the chest uncovered. The night was intensely cold. She awoke in great pain. When first seen on Nov. 7th the patient looked very ill, she was sweating profusely, and scarcely dared to move on account of the pain in her breast. The pulse was 120 and the temperature 101·8° F. The tongue was foul. The left breast was large and rounded, the areola being œdematous so as to rise above the nipple; the skin over the outer half was red and œdematous covering a hard and very tender lump; the axillary glands were swollen and tender; the inner half of the breast was free from lumps but felt œdematous. Being uncertain as to whether an abscess had formed I manipulated the breast freely. At first this was a terribly painful experience for the patient but eventually it appeared to give relief. Nothing came from the nipple but a small plug of greenish-yellow mucus. I ordered a free purge, bandaged the breast, and directed that poultices were not to be used. On Nov. 8th the patient had a bad night. The pulse was 128 and the temperature 103°. The bowels were opened four times. The axillary half of the breast was occupied by a doughy mass and was very painful. The skin over it was very red and swollen. The patient looked very ill. After manipulating the breast I was surprised to see a large drop of pure pus exude from the nipple. This was followed by five more drops. The patient was much relieved. I ordered poultices to be freely applied. On Nov. 9th she had a good night. The pulse was 72 and the temperature 99·2°. The skin was cool. She felt much better but still complained of stabbing pain through the chest. The breast was smaller. A firm lump occupied more than half of the breast. On manipulation a few more drops of pus exuded On Nov. 10th a good night was passed by the patient. The pulse was 80 and the temperature 99·2°. A drop of thin milky-looking fluid exuded on pressure. Uninterrupted progress followed. The indurated mass slowly disappeared. After five weeks there was a lump of the size of a walnut surrounding the big milk ducts, much less defined than formerly.

I am convinced that this patient had an abscess, that the pus was evacuated through the nipple, and that, considering the pathology of these cases, the course adopted was not only justified but reasonable as well.

Knowsley.

CARBOLIC ACID AND TYPHOID FEVER.

BY GERALD WILLIAMS, M.D.

LAST autumn I attended a case of typhoid fever—a typical case with rash, hæmorrhage, and diarrhœa. The patient recovered in twenty-seven days. Ten days after the temperature had been normal both morning and evening he relapsed. His temperature at the end of the first week was 106° F. in the evening for two days. He had two hæmorrhages and distressing diarrhœa. On the fourteenth day of the relapse I saw him at 9 P.M. and as the diarrhœa was excessive I prescribed for him accordingly. The temperature was then 104·5°; the pulse was 90. At midnight his brothee who was nursing him came for me in a great hurry. He told me that he had given him two tablespoonsful of purI carbolic acid in mistake for the diarrhœa mixture. hurried as quickly as possible to his house. Fifteen minutes must have elapsed from the time of taking the poison to my arrival. I took a quart of saccharate of lime and my bag with a few drugs. When I arrived the patient was trying to vomit by putting his fist down his throat, but as yet had not succeeded; before I arrived he had "drunk about a quart of milk." He was very much frightened, his mouth was terribly burnt, his lips were perfectly white, and he complained of great pain in the stomach; he was not at all collapsed. I made him drink a quart of saccharate of lime and administered one-tenth of a grain of apomorphine hypodermically. He vomited in about one minute. I then gave him salad oil and sulphate of soda. He vomited several times more, the vomited matter on the last occasion being almost free from the smell of carbolic acid. He then fell back in bed completely collapsed. The pulse was hard to find and respiration was laboured. I injected brandy and æther sulphuricus hypodermically. He very quickly recovered; in two hours from the time I arrived I left him. I saw him at 8 A.M. next morning, and was very much surprised to find him looking and feeling very much better than before he took the acid. He only complained of his throat and slight pain in his stomach. His temperature was normal. The pulse was 96. He never had any return of fever, and in a week was out of bed. When his mouth healed he had nothing to complain of at all. In my mind this is a clear case of cure by carbolic acid, but I should not care to try quite such a big dose.

Vernon, B.C., Canada.

FAREWELL DINNER TO A MEDICAL MAN.—The medical section of the Royal Society of Tasmania entertained at a farewell dinner, at Hadley's Oriental Hotel, Hobart Town, on Oct. 25th last, Mr. W. A. Harvey, M.B., L.R.C.P. Lond., M.R.C.S. Eng. With three exceptions all the members were present. Mr. R. S. Bright, M.R.C.S. Eng., who occupied the chair, proposed the health of Dr. Harvey and said he did so with mixed pleasure seeing that that gentleman was about to leave the colony. Dr. Harvey had been with them for about twelve years and had laboured with them in an unostentatious way, gaining general esteem and regard. Dr. Harvey, in replying, said he felt and appreciated the honour to be present among his professional brethren.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 15th, 1897, Dr. Cattle, the President, being in the chair.—Dr. Ransom read a paper and gave a lantern demonstration on Pernicious Anæmia. The conclusions arrived at were that blood destruction always plays a part in the pathogenesis of the disease, but evidence was brought to show that disease of the normal hæmogenetic tissues, in spite of compensatory activity of the medulla of the long bones, without increase of the normal hæmolytic processes, could also produce the same group of symptoms. Pernicious anæmia may be due to increased hæmolysis caused by toxins absorbed from the digestive tract or elsewhere or to excessive fragility of new-made red corpuscles with normal hæmolysis. There is no sufficient evidence that the hæmolytic process is confined to the portal area. Iron-containing pigment may be found variously in the liver, spleen, kidneys, or intestinal mucosa, but is probably in all these places merely stored up on being excreted.—Dr. Cattle, Dr. Tresidder, and Dr. Watson made remarks and Dr. Ransom replied.—Dr. Carroll submitted notes of a Rare Case of Hydatid of the Kidney.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia prò certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

WESTMINSTER HOSPITAL.

A CASE OF RUPTURE OF THE COMMON BILE-DUCT.

(Under the care of Mr. WALTER SPENCER.)

CASES of rupture of the common bile-duct are decidedly rare and in the majority of those recorded the most striking feature has been the almost complete absence of any signs of inflammation of the peritoneum directly resulting from the presence of the extravasated bile. As a rule only a few adhesions form and suppuration is very rarely present. Death is usually the result of exhaustion and may not occur until many days after the injury. In the case recorded below it took place on the thirty-third day and the same length of time elapsed between the injury and the fatal issue in a case recorded by Fizeau. Recovery has occurred in several cases after repeated tappings, and though in these the diagnosis was not certain yet the symptoms were practically distinctive. A case in many respects similar to Mr. Spencer's was recorded by Mr. W. H. Battle in the Clinical Society's Transactions.[1] For the notes of the case we are indebted to Dr. Kenneth Wilson, house surgeon.

A boy, five years of age, was brought to the Westminster Hospital on Aug. 21st, 1897, suffering from the effects of an accident. A wheel of a Hansom cab was said to have passed over the lower part of the thorax and the upper part of the abdomen. The patient was a well nourished child but was in a condition of severe collapse, pallid, with frequent pulse and very jerky respiration; the temperature was 95° F. in the axilla. No bruises were apparent, but the ninth rib on the left side had been separated from its cartilage and was projecting under the skin. A few hours later the child was again examined. The respirations were 30, very jerky and irregular; deep respirations were evidently painful. Some fine crepitations were heard at the base of the right lung. There were no signs of fluid in the chest. The abdomen was distended, and there was some dulness on percussion in each flank when the patient was turned on that side. The splenic and liver dulness was normal and neither of these organs could be felt. There was no marked tenderness in the abdomen. The patient had passed some urine and the bladder was not distended. No blood or sugar was found in the urine. About an hour before this examination the child had vomited some partially digested food; the vomit contained no blood. The stomach note extended up to the fifth rib on the left side. Some bruising was now apparent round the injured rib and a hæmatoma had formed under the skin. It was thought that there was possibly a tear in the diaphragm immediately under the seat of the injury of the rib. During the night the temperature gradually rose to 100° and the patient recovered somewhat from the collapsed condition. Half an ounce of milk was given every hour. During the second day the pulse was 100, the respirations were 30, and the temperature was 100°. After the administration of a glycerine enema a normal stool was passed. On the third day the patient vomited four times in the early morning. Another glycerine enema was given which did not act. In consequence of the vomiting he was fed by nutrient enemata (two ounces at a time) and beef suppositories alternately every four hours. The stomach note was a little higher on the left side. On the fourth day the general condition of the patient was not improved, the local bruising was more marked, the hæmatoma was less distinct, and the respiration and pulse continued as before, though slightly slower. A slight icteric tint appeared in the conjunctivæ, and the abdomen was distended and resonant, the dulness in the flanks having disappeared. Half an ounce of milk was given every hour by the mouth and the nutrient suppositories were continued. There was much restlessness during the night; the bowels acted naturally twice. On the fifth day the jaundice was more marked and the stools were clay-coloured; the urine was acid and highly coloured and contained bile. The child was very restless all through the next day. The respiration was 52 and the pulse was 128. A mixture containing gentian and nitro-hydrochloric acid three times daily and half an ounce of olive oil every morning were ordered. The general condition remained unchanged until the evening of the eighth day when the patient vomited five times. The bowels had not been open on that day, and therefore a starch and oil enema was given without any result; this was followed on the next day by a glycerine enema but the bowels did not act. On the evening of the ninth day four grains of Dover's powder were given for restlessness and some calomel and a castor oil enema relieved the constipation. By the eleventh day the child was able to take fish, custard, eggs, milk and beef tea, but in spite of this food he had become very thin, the malar bone being very prominent and the face having a worn and wrinkled appearance, whereas on admission he had been plump and well-nourished. The abdomen was distended and resonant all over. There was general icterus, the stools were colourless and clay-like, and the urine contained bile. His favourite attitude for the relief of the pain which he suffered was the genu-pectoral position. On the twelfth day the bowels were open six times. Early on the morning of the thirteenth day the child was very restless and had considerable pain in the upper part of the abdomen, which was uniformly distended, but was dull on percussion for the first time. Much fluid was evidently present. The respirations were 30, the pulse was 128, and the temperature was 98°. At 2 P.M. on the same day, the child having been anæsthetised with chloroform and the surface of the abdomen having been carefully cleansed Mr. Spencer made an incision about two inches long in the middle line of the abdomen above the umbilicus. About a pint and a half of thick bile-like fluid was slowly let out. A finger was introduced into the wound, and the gall-bladder, moderately distended, was felt. As the child did not seem in a fit condition for further operative procedures a drainage-tube was inserted and the wound sutured and dressed. The child was evidently much more comfortable after the operation and could lie upon his back. The temperature rose to 100°. The wound was dressed twice the next day, and the tube was left out at the second dressing. The jaundice diminished slightly for the two days following the operation, but the stools were still clay-coloured and the urine contained bile. From this time the child no longer had any control over his sphincters. He was fed by nutrient enemata and suppositories for twenty-four hours after the operation and then was put on his former diet with the addition of two ounces of brandy or port and some cream. After the tube had been left out the jaundiced condition of the skin returned; the emaciation continued, the child having steadily decreased in weight from the time of admission. On the morning of the eighteenth day a fluctuating swelling limited to the upper third of the abdomen was present; it was dull on percussion. Mr. Spencer operated again at 2 P.M., making an incision in the middle line of the abdomen, higher in position than the previous incision and extending down to the upper end of that incision. This let out a quantity of fresh bile. Some bile-stained mesentery appeared in the wound. On passing the finger into the wound the following conditions were found. Below were adhesions; above on the right side the lower surface of the liver was distinguishable. On feeling to the left it was apparent that the liver had been pushed over to the right, for the under surface of the diaphragm could be felt. The smooth surface of the uninjured diaphragm was felt on the inner surface of the broken rib. Neither at this nor at the former operation was any tear of the liver or gall-bladder felt. A drainage tube was inserted and the wound sewn up. At the subsequent daily dressings it was evident that a large quantity of biliary discharge was flowing from the tube. On the twenty-second day the jaundice of the skin had nearly cleared up and the abdomen was resonant and retracted. Bile was discharging through the tube which was inserted close to the under surface of the liver and the abdominal wound was nearly healed. The stools were still clay-coloured and the urine contained bile. Ox bile was given in a mixture by the mouth, but the emaciation did not

[1] Vol. xxvii., p. 144.

improve. The genu-pectoral position was still the favourite one when he was suffering any pain. A few days later ox bile pills coated with keratin were substituted for the mixture, but the emaciation steadily continued, the patient losing half a pound in weight during the last three days before death. He vomited occasionally towards the end and became progressively weaker and died on the thirty-third day after the accident.

Necropsy.—The body was extremely emaciated and slight rigor mortis was noticed. In the upper part of the abdominal wound was a fistulous opening leading upwards and to the left, a probe entering three inches. On opening the abdomen the peritoneum was found to be dry and dull with numerous recent adhesions; some firmer adhesions existed between the ileum and the bladder. Between the liver, the stomach, the small omentum, and the diaphragm was a cavity shut off by adhesions from the rest of the peritoneal cavity. It contained bile and into it opened the fistulous opening mentioned above. The whole of the peritoneum was deeply bile-stained. The common bile-duct was torn quite across *close to its entrance into the duodenum*. The gall-bladder contained about an ounce of yellow bile. Both pleurae contained recent adhesions which were easily broken down. The cartilages of the eighth and ninth ribs on the left side had been broken across. The diaphragm was intact and the other organs were healthy. Microscopically the fæces were found to contain numerous oil globules.

Remarks by Mr. SPENCER.—Some points of interest in the case are: (1) the injury being limited to the bile-duct; (2) the extreme emaciation, probably partially connected with the escape of pancreatic secretion; (3) the condition of the adhesions would have made a cholecystduodenostomy a very difficult operation; (4) no sugar was present in the urine; (5) the divided gall-duct could not have been reached during life.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Sero-therapy of Typhoid Fever.—Lipoma Nasi.—Intra-hepatic Calculi.—Pancreas in Diabetes.—Cystic Disease of the Liver and Kidneys.—Interstitial Lymphadenitis of the Liver in Rickets.

A MEETING of this society was held on Jan. 4th, the President, Dr. PAYNE, being in the chair.

Mr. T. J. BOKENHAM gave an account of researches bearing on the Sero-therapy of Typhoid Fever. He pointed out that all the recent researches on typhoid fever indicated the need for drawing a clear distinction between the principles governing the sero-therapy of this disease and those applicable to the case of diphtheria and tetanus. While the sero-therapy of diphtheria depends on the existance of a true antitoxic function of the remedial serum no such function has yet been demonstrated as possessed by any known "anti-typhoid" or "anti-streptococcus" serum. No definite proof is as yet available that true toxins are actually produced by the life processes of either Eberth's bacillus or of the streptococcus. Until such toxins have been prepared and investigated in the laboratory nothing can justify our talking of either a "typhoid" or a "streptococcus" antitoxic serum. In the face of clinical evidence we cannot but admit that sera obtained from animals immunised by suitable treatment against typhoid cultures or against streptococci have decided and valuable therapeutic properties, but Mr. Bokenham was inclined to attribute the good effects of such sera to their bactericidal and not to their antitoxic powers. Before any advance whatever could be made in the study of the sero-therapy of typhoid fever the question of specificity of the typhoid bacillus and its differentiation from the bacillus coli had to be finally settled. Cultural differences long ago settled the point to the satisfaction of most bacteriologists, while "Widal's reaction" gave additional evidence that admixture of serum from a typhoid fever patient with cultures of (*a*) bacillus typhosus, and (*b*) bacillus coli, produced in the one case perfect agglutination and in the other case no change. The distinction between these two microbes is demonstrated in an equally striking manner by a simple experiment in sero-therapy such as has been performed both by Dr. Funck, of Vienna, and after him by Mr. Bokenham, A tabular record of these experiments was shown on the screen which showed (1) the protective effect upon young guinea-pigs of serum from a horse immunised against typhoid fever when mixed with a ten times lethal dose of typhoid culture; (2) the failure of the serum to protect against a similar dose of bacillus coli; and (3) the apparent power of even normal serum to afford similar protection when given in large doses. The evidence in favour of the specific nature of Eberth's bacillus must therefore be taken as conclusive. As regards immunisation against the typhoid bacillus, Mr. Bokenham's own experiments lead him to endorse Pfeiffer's statements and to consider anti-typhoid serum derived from immunised animals as being chiefly bactericidal in action. Two methods of immunisation have been described. Method 1 consists in using living virulent cultures. The objection to this is that it is dangerous to both animals and investigators and that results are but slowly produced. Method 2 consists in administering cultures of bacilli which have been killed either by heat, chloroform, or some other antiseptic substance. Mr. Bokenham thinks that a combination of the two methods is likely to possess some advantages, although he is now inclined to prefer a plan which differs in some respects from either of the two alluded to. While engaged on the immunisation of horses for the production of diphtheria antitoxin he was much struck by the results obtained from following out the method of immunisation first described by Cartwright Wood. He found that by the use of heated and filtered cultures of diphtheria bacillus grown in albumin-broth not only could a condition of high resistance be rapidly set up but that such injections actually gave rise to the formation of antitoxin in the blood without the use of any ordinary diphtheria toxin at all. Mr. Bokenham showed two charts of the temperature of two animals treated by him with this "serum toxin." Now the good results thus obtained were the result of using a filtrate of which the toxic properties had been destroyed by heat; as it was found later that a course of injections of true toxin had in both the animals quite the reverse of a beneficial effect we must admit that a curative serum for diphtheria is producible without the intervention of toxins at all. Mr. Bokenham wished to see whether a similar method of treatment might not also be applicable to the case of typhoid fever. For this he prepared a bouillon to which was added 10 per cent. of blood serum (converted into alkali-albumin). The medium was then inoculated with virulent typhoid bacilli and incubated for at least three weeks, after which it was filtered through a Berkefeld filter to remove bacilli. Tested on guinea-pigs such a filtrate was altogether devoid of harmful action and gave rise to no symptoms save some rise of temperature. Chemical tests showed the presence of an albumose similar to that isolated some years ago by Dr. Soltau Fenwick and Mr. Bokenham from the spleens of patients dead from typhoid fever. This filtrate was then used to immunise a horse or at least to try to produce some modification of its natural susceptibility to either living or dead typhoid bacilli. Mr. Bokenham then showed the chart of a horse treated first with the above filtrates, then with killed cultures, and finally with alternating injections of filtrate and of killed culture. He also showed for purposes of comparison the chart of an animal treated with killed cultures only. While the first animal remained always in excellent health and was little affected by the injections the second horse reacted most violently to each injection. There were also corresponding differences in the case of the two sera obtained from them, the first producing the agglutination reaction with extreme readiness, the second being far less active. The susceptibility to living cultures of typhoid bacillus was also much less marked in horse 1 than in horse 2. So far then there was some evidence that the filtrate from living cultures, although not toxic, had other properties of at least equal importance. An animal treated with it showed a decidedly increased tolerance to both killed and living typhoid cultures and yielded a serum which possessed marked agglutinative powers. Experiments showed that injections of serum made within three hours of injecting 10 lethal doses of culture were in a large number of cases efficacious. Mr. Bokenham summarised his results as follows: (1) non-toxic filtrates of fresh cultures have distinct immunising powers; (2) the immunising action is displayed towards both living

and dead cultures; (3) the serum of an animal treated with filtrates of fresh cultures acquires agglutinative and bactericidal properties; (4) mixed with living cultures in sufficient proportion the serum renders them harmless; and (5) to a certain extent the serum has also protective and curative powers. Mr. Bokenham agreed with other observers in considering the serum as devoid of antitoxic properties. He believed, however, that such a serum will ultimately be obtainable and although unfortunately his own experiments have been interrupted they afforded some indication as to the lines on which progress may be hoped for.—Dr. BERTRAM ABRAHAMS thought that the specificity of the typhoid bacillus was now thoroughly established. He did not think that experimental injections of typhoid bacilli were altogether conclusive, as they produced death in twenty-four hours and not a chronic disease such as occurred in man. In a few instances, however, true typhoid fever had been communicated to animals through the alimentary canal. Although Mr. Bokenham had said that there was no actual toxin of typhoid fever yet he spoke of the probability of discovering an antitoxin, which appeared contradictory.—Mr. BOKENHAM, in reply, said that it was generally held by clinical observers that the symptoms of typhoid fever were due to an intoxication, but he wished to convey that until such toxin had been isolated by laboratory methods and submitted to tests it was premature to assume its existence.

Mr. EDGAR WILLETT showed a specimen of Lipoma Nasi from a man seventy years of age. There was no history of alcoholism. Mr. Willett remarked that cases of this condition always occurred in males. If the popular belief that they were due to alcoholism were correct it would be expected that it would sometimes occur in women. On section the specimen showed that the name "lipoma" was misapplied. There was no fat except in the sebaceous secretion, but the mass was made up of hypertrophied fibrous tissue in the deeper layers of the skin which enclosed masses of sebaceous gland acini. In the sebaceous matter were abundant bacilli apparently identical with the bacillus of seborrhœa.

Dr. ROLLESTON showed large Intra-hepatic Calculi *in situ* from a man, aged thirty-eight years, who died from diabetes and pulmonary tuberculosis and had been jaundiced. It appeared possible that the extension of duodenal catarrh to the pancreatic duct had set up chronic pancreatitis and that this in its turn had set up diabetes. The fibrotic pancreas with its dilated duct containing calculi was also shown. Possibly the extension of catarrh to the intra-hepatic ducts accounted for the calculi. The calculi were large, filled up the hepatic ducts, crumbled, and were composed of bile pigment and cholesterin. There were no calculi in the gall-bladder and the cystic duct was not dilated so the intra-hepatic calculi had been formed *in situ* and had not been conveyed there from the gall-bladder. Intra-hepatic calculi of any size were rare and the occurrence of cholelithiasis in diabetes is quite exceptional; in 220 cases of diabetes quoted by Brockbank from Windle there was one calculus, or 0·45 per cent. Sections of the pancreas showed that there was chronic pancreatitis and that in some of the smaller ducts there were some small concretions, probably phosphatic. He thought that the man through alcoholic habits had suffered from duodenal catarrh and that this had spread up the duct of Wirsung producing chronic pancreatitis, which in its turn had given rise to the diabetes.

Mr. RAYMOND JOHNSON brought forward a case of Cystic Disease of the Kidneys and Liver. The patient, a woman, fifty-three years of age, gave a history of two attacks of hæmaturia twelve and four years ago respectively. For five months there had been repeated vomiting after food and progressive emaciation. Each kidney could be felt as a large lobulated tumour, but there was no apparent enlargement of the liver and no jaundice. The daily excretion of urine varied between 25 oz. and 34½ oz. and it contained from 120 to 135 grains of urea; the specific gravity was 1010 and a trace of albumin was present. Death occurred quite suddenly and was not preceded by coma or convulsions. The left kidney weighed 62½ oz. and the right 24 oz.; each was converted into a mass of cysts varying in size and containing clear or opalescent fluid. Here and there between the cysts small areas of indurated renal substance were recognisable. The ureters were normal. The liver was studded throughout with cysts, the largest being of the size of a hazel nut; in other respects the liver was normal. The spleen contained a small softened nodule having all the characters of a softened gumma. There was no hypertrophy of the heart. One ovary was cystic. The brain was not examined. Microscopic examination showed that the smaller cysts in the kidney were lined with cubical or columnar epithelium and the larger ones with flattened epithelium. In the solid tissue between the cysts were abundant remains of renal tubules and normal looking glomeruli. In parts a somewhat dense round-celled infiltration was present. In the liver the cysts arose from dilatation of biliary ducts. They were lined with cubical or columnar epithelium and surrounded by a dense, almost non-cellular, fibrous tissue. Mr. Johnson thought that the appearances supported the view expressed by Dr. Still that the cystic change was to be regarded rather as a developmental error than as a result of inflammation. Assuming that the cystic condition of the kidneys was also due to some similar cause it seemed probable that considerable inflammatory changes had supervened and had probably been concerned in leading to the fatal result.

Mr. JACKSON CLARKE showed a Section of the Liver of a child suffering from Rickets who died from Tetany. The portal canals contained an increased amount of lymphoid tissue. Sections of the small intestine, spleen, and lymphatic glands also showed a similar lymphoid hyperplasia. Mr. Clarke regarded the adenoids so commonly present in rickety children as part of a widespread tendency to hyperplasia of lymphoid tissue in rickets.—Dr. ROLLESTON questioned whether the new formations in the portal spaces were due to hyperplasia of lymphoid tissue as he had never been able to convince himself that lymphoid tissue occurred normally in the liver. He thought that it was due to hyperplasia of the connective tissue from the absorption of irritating matter from the intestine.—The PRESIDENT remarked that the pathology of the enlarged viscera met with in some cases of rickets required investigating afresh with modern methods. It had been suggested that they were syphilitic, but he thought that they were of a different type. The appearance of an extreme rickety liver to the naked eye was much more like that of an amyloid liver. It was quite possible that the specimens shown by Mr. Clarke were an early stage of the condition which had been described by Dr. Howship Dickinson and others. Even if it were admitted that the changes in rickets were inflammatory the causation still remained obscure. The most probable explanation was that there was some irritating substance circulating in the blood and that the main incidence of the poison was on the bones much in the same way as the chief incidence of the rheumatic poison was on the joints.—Dr. PARKES WEBER strongly supported the view that these changes were due to auto-intoxication from the alimentary canal. Extreme fatty infiltration was not uncommon and he accounted for this by supposing that the auto-intoxication so damaged the vitality of the liver cells that they could not part with fat and became surcharged with it. A similar loss of vitality on the part of the liver-cells might also account for the large fatty livers frequently met with in patients dying from pulmonary phthisis.—Dr. W. S. LAZARUS-BARLOW said that he had met with a very similar appearance in the livers of some guinea-pigs on whom he had experimented with digitoxin. He could not regard the condition as one of commencing fibrosis as there were only round hyaline cells present, and no spindle-cells or signs of fibrillation. He was inclined to regard it as an acute inflammatory condition due to auto-intoxication.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.—Typhoid Fever in Leeds.

A MEETING of this society was held on Dec. 7th, 1897, the President, Dr. ARNOLD EVANS, being in the chair.

Dr. MAJOR gave a Microscopical Demonstration, including Sections of the Spinal Cord from a case of Tabes Dorsalis, Blood from Pernicious Anæmia, and Sections of Cerebral Cortex.

Dr. BRONNER showed a case of Orbital Cellulitis. In the upper part of the orbit was a hard mass which simulated a new growth. Dr. Bronner considered that the hardness was caused by compression of the inflamed cellular tissue by the muscles of the upper eyelid. An incision had been made

deeply into the swelling but no pus was obtained. The mass was subsiding under simple treatment.—Dr. RABAGLIATI, Mr. MORTON, Mr. CARTER, and Mr. HORROCKS discussed the case.

Mr. ALTHORP showed a case of Congenital Club Hand which had been operated on in the first instance, not by himself, by removal of portions of the metacarpal bones. Mr. Althorp had again operated twice with a view of liberating some of the tendons which were adherent and had in addition excised part of the first metacarpal bone. He made some observations on club hand in general and the case was discussed by several members.

Mr. HORROCKS showed the Ovum from a case of Ectopic Gestation. The case was operated on by abdominal section, the ovum and clots were removed, the edges of the sac were stitched to the abdominal wound and the cavity was drained with iodoformised gauze. The patient made a rapid recovery.

Mr. GODFREY CARTER gave notes of a limited outbreak of Typhoid Fever in Leeds durirg the months of August and September, 1897. There were thirty-two cases occurring in three small streets of cottages situated in a shallow valley. The likelihood of the disease being imported was not very great as few of the patients had been from home during the previous month. The houses had partly outside water-closets and partly privy middens, from one to four households using one midden. In 25 per cent. of the houses the drains were found to be defective, as shown by the calcium phosphide test. The families of 41·6 per cent. of the cases were supplied with milk by one of two brothers who obtained their milk from separate sources, but often supplied one another in case of deficiency. At the farm from which one of these brothers obtained milk the water came from a shallow spring in cultivated fields and showed very marked animal defilement, but bacteriological examination did not reveal the presence of Eberth's bacillus. Four samples of milk—two from the other farm and two from the one under consideration—were examined and one of the two latter only showed the presence of Eberth's bacillus. This sample of milk had been stored in the milkman's cellar while the other had never entered the house. The cellar had a sink communicating by an imperfect trap with the city sewers, the drain under the cellar was leaking at every joint. The milk before being sent out was occasionally stored in this cellar being placed in open pans on a stone bench three or four feet high. There had been several cases of fever in the vicinity of the dairy and consequently contamination of the drains. Mr. Carter considered that this was a case in which the poison had been aërially conveyed in the shape of spores or otherwise from the sewer through the leaking drain to the pans of milk. The empty milk cans were kept in the cellar, but Mr. Carter did not think that they could be contaminated sufficiently to affect the milk to any extent.—Dr. EVANS, Mr. FARROW, Dr. GOYDER, Dr. BELL, Dr. KITCHIN, and Dr. CAMPBELL discussed the paper, and Mr. CARTER replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Syphilitic Encephalopathy.—Pernicious Anæmia.

A MEETING of this section was held on Dec. 17th, 1897, Sir GEORGE F. DUFFEY, the President, being in the chair.

Dr. W. R. DAWSON read notes on a case of Syphilitic Encephalopathy. The patient was a man, forty-five years of age, who suffered from grandiose delusions and some mental weakness. He had a history of syphilis and chronic alcoholism and some years previously had suffered from some ocular paralysis, recovering with abstinence and iodide of potassium. There were extensive paralysis of intraocular muscles, ptosis, general tremor, flattening of the face, increased knee-jerks, muscular and cutaneous sensory abnormalities, and perhaps girdle pains, cardiac weakness and a rupial skin eruption. Speech was not affected. Abstinence and iodide once more proved effective and the patient, after passing through a melancholic stage, recovered in about seven months.

Dr. J. B. COLEMAN read a note on a case of Pernicious Anæmia. The patient was a man, aged sixty-seven years, who was admitted to hospital complaining of weakness and shortness of breath. He stated that he had been becoming pale and weak for two or three months during which time he had occasional attacks of diarrhœa and vomiting. He was extremely anæmic. His temperature ranged from 99° to 101° F. His urine was normal in quantity and acid in reaction; it contained neither sugar nor albumin; it gave the urobilin spectrum and a marked indican reaction; urea 2 per cent. His blood was pale pink, very watery, did not clot readily, and was of specific gravity 1034; the fresh specimens showed great variation in the size and shape of the red cells which had no tendency to form rouleaux. Hæmoglobin was reduced to 30 per cent. of normal; the red cells numbered 1,000 000 and subsequently 800,000 per cubic mm. (from 20 to 17 per cent. of normal number); there were only 1100 white cells per cubic mm., but on the day of his death they mounted to 21,000. Stained blood preparations, which were exhibited, showed poikilocytes, megalocytes (diameter 14 μ), microcytes (diameter 2–4 μ), and nucleated red cells; the latter comprised both gigantoblasts (diameter 14–21 μ) and normoblasts; some red cells had lost their hæmoglobin (shadow corpuscles) and others showed polychromatophilic changes. He died three weeks after admission to hospital. Regarding treatment arsenic was tried but had to be discontinued; gastric sedatives, intestinal antiseptics, rectal injections of water, oxygen inhalations, and nutrient enemata were given. The post-mortem examination disclosed no lesion to account for the anæmia.—Dr. CRAIG said that in cases of pernicious anæmia much stress had been laid on the proportion of organic to normal sulphates in the urine not only as a means of diagnosis but also as a guide to treatment. The amount of organic sulphates diminishes if the case is progressing well.

SECTION OF SURGERY.

Antitoxin Treatment of Tetanus.

A MEETING of this section was held on Dec. 10th, 1897, Sir WILLIAM THOMSON, President, being in the chair.

Mr. GLASGOW PATTESON read notes of two cases of Tetanus Treated with Injections of Antitoxic Serum both of which recovered. In the first case, a boy aged fourteen years, who trod on a thorn, the symptoms developed eleven days after the injury. Ten c cm. of serum were injected thrice daily at first and twenty-three injections were given in all. In the second case, a man who fell off a cart and cut his knee, the symptoms came on about twelve days after the injury, rigidity and opisthotonos being well marked. Eighteen injections of 10 c.cm. each were administered in all and the patient was quite well at the end of a fortnight.

Mr. J. KNOX DENHAM read a paper on a case of Tetanus.

Mr. HENRY CROLY read notes on a case of "Cephalic" or "Hydrophobic" Tetanus. The patient, a man aged thirty-five years, was thrown to the ground while driving a horse and trap and sustained severe head injuries, shortly after which he had an attack of tetanus accompanied by unilateral facial paralysis. Tetanus antitoxin (one gramme of dried serum dissolved in two drachms of sterilised distilled water) was injected hypodermically but did not appear to do any good so it was discontinued after some days. The next treatment was chloral hydrate in drachm doses night and morning, which lessened the spasms and produced sleep. From this time onward the spasms grew less daily, the facial paralysis disappeared, and the patient made an excellent recovery.

Mr. HENRY GRAY CROLY related a fatal case of Tetanus which occurred last November and was treated with injections of antitoxin. He had tried the antitoxin treatment in more than one case without any benefit whatever. He had often noticed yawning to be a forerunning symptom of tetanus.

Sir THORNLEY STOKER said that he had seen Mr. Denham's case of tetanus and he had no doubt whatever that the antitoxin did diminish, or at times even abolish, the spasms. The patient nevertheless died. In the application of antitoxin for tetanus it was impossible to say in a given case whether it was the treatment that cured the patient or not. He described a case of tetanus in a boy, aged thirteen years, who recovered after being treated with mercury and with inhalation of the vapour of nitrite of amyl which completely allayed the spasms.

Mr. MYLES said he had met two cases of tetanus, both of which recovered. In one of them he had used antitoxin. Recovery was complete. He thought that the gradually increasing weight of evidence was in favour of antitoxin

and that no man could feel that he had done his duty in a case if he did not at least give the patient a chance.

Mr. MCCAUSLAND described a case of Tetanus occurring in a man with slight wounds on the legs. Under an anæsthetic the skin around the wounds was freely excised and at the same time an injection of French antitoxin was given. A drachm of bromidia every two hours, nourishment, and a large enema were ordered. Only two slight spasms occurred after recovery from the anæsthetic and recovery was complete in ten days.

Mr. LENTAIGNE said that he had treated three cases of tetanus with mercury and chloral and all had recovered, whether as a result of the treatment or not he would not venture to say.

Mr. PATTESON, replying, said that he had employed fluid serum prepared at the Pasteur Institute. Dried serum was also made and had the advantage of retaining its properties better. He would not like to trust to mercury as a treatment for tetanus.

Reviews and Notices of Books.

Death and Sudden Death. By P. BROUARDEL, Professor of Medical Jurisprudence, Dean of the Faculty of Medicine, Paris, Member of the Institute and of the Academy of Medicine. Translated by F. LUCAS BENHAM, M.D., B.S. Lond., M.R.C.P. Lond. Pp. 270. London: Baillière, Tindall, and Cox. 1897.

THIS book is a veritable classic. It is long since we read a work so remarkable for its conciseness, its diction, and its logical accuracy. As Dr. Benham remarks, "it treats of a subject which is hardly touched on in English medical literature." It should be read by every practitioner and student. The descriptive text is clear. Dr. Brouardel has the happy faculty of distinguishing the certain from the problematical and of nicely adjusting and expressing the degree of probability. The book is divided into two parts, the former dealing with the Signs of Death and the latter with Sudden Death.

The signs of death are described in detail and the value of each is carefully weighed. As a corollary we have presented to us the author's views on Premature and Live Burial, a subject we discussed last year in our columns. Whilst admitting the authenticity of narratives of persons having been buried alive and the possibility of recurrence of such an event he is of opinion that "the danger does not lie in the period of time (between the alleged death and the burial) fixed by law, but in the incompetence of persons appointed to legally confirm the fact of death." A grave indictment is laid against the authorities of not providing efficient medical service both as regards assistance to the poor and the verification of death in country districts. "In the 36,000 communes of France the mayor and his deputy are not necessarily doctors of medicine, they are therefore incompetent, and as they are fully cognisant of their incompetence they do not take much trouble about it; they do not go to deceased's house to obtain actual proof of death, and the person who comes to give information of death is allowed to take away the permission to bury. The law, such as it is, makes this procedure legal." And again: "In the country many people die without any professional man being called in." Dr. Brouardel suggests as a remedy that for these districts medical men should be provided by State aid. We have not space to criticise in detail all the sections of the work so admirable throughout, but we would direct attention to a few subjects which in other treatises are glossed over with cursory notice. We gather that the mortality amongst new-born children is much greater than it should be owing to the fact that "*apparent death* is tolerably frequent at the moment of birth." Long-continued attempts at resuscitation are recommended.

Speaking of the signs of death Dr. Brouardel lays stress upon the fact that rhythmical movements of the abdominal and thigh muscles and of the diaphragm may last for some time after the circulatory and respiratory functions have ceased. "Post-mortem parturition" he attributes to expulsion by gases developed in the abdomen and not to vital uterine contraction.

The chapter on Death from Inhibition is very attractive. Cases are cited where death has arisen reflexly from injuries over the epigastrium, hypogastrium, and the larynx, injuries of so little severity as *primâ facie* to be quite inadequate to cause a fatal result. The argument is supported by facts obtained by experimentation on the lower animals.

The method and mechanism of Sudden Death is fully discussed and its relation to the functions of the different organs and systems of organs described in great detail. The section which treats of Alcoholism is one that should be read not only by medical men but by all others concerned in the investigation of cases of sudden death in alcoholics which so frequently engage legal notice. The author directs attention to the frequency of serious lesions and even death arising from slight blows or excitement in persons habituated to alcoholic excess, remarking that "the gravity of the lesions is often more dependent on the victim than on the culprit."

On the question of the criminal responsibility of inebriates Dr. Brouardel boldly affirms that they should not be exempt from punishment since they must know that excess in the use of stimulants may entail the commission of illegal acts. He contrasts the maddening to crime by drink with the irresponsible acts of "a madman or poor lunatic."

It would take pages to adequately notice the work before us, but we shall have succeeded in our desire if the above comments stimulate our readers to obtain the work for themselves. We can promise them a rare literary and scientific treat.

Dr. Benham has given a most successful representation of the original. It is saying a great deal, but we do not hesitate to affirm that his translation has preserved all the charm and accuracy of Dr. Brouardel's lectures. The letterpress is bold. The work is not illustrated, indeed, the author's pen required no extraneous aid.

English Sanitary Institutions; Reviewed in their Course of Development and in some of their Political and Social Relations. By Sir JOHN SIMON, K.C.B., F.R.S., &c., Past President of the Royal College of Surgeons of England, and formerly Medical Officer of Her Majesty's Privy Council. Second edition. London: Smith, Elder and Co. 1897. Price 18*s*.

To the province of Sir John Simon's sanitation there are none of those restricted boundaries which in popular parlance limit matters "sanitary." The history of English sanitary institutions is in his hands the history of centuries of national movements and individual endeavours which have had for object or result the increase of the health and the happiness of the mass of English people. In the latter half of the present century success in this direction has been achieved to an extent which might well have seemed incredible not many generations ago. The reason is to be sought not merely in the conspicuous increase of exact medical and scientific knowledge during the period, nor can we, except in part, attribute it to the zeal of the sanitary reformers of the Victorian era, great as they have been. We need also to inquire by what process of evolution English social life and English politics had at length come to be impressed by the need for national sanitary progress.

It is not the least part of our debt to Sir John Simon that he has answered this question for us after a fashion which must needs give him high rank among historians. In the first half of "English Sanitary Institutions" he has presented

us with a series of outlines—like all Simon's work, fascinating in form and expression—which bring vividly before us the social conditions which from mediæval to pre-Victorian times have operated to diminish or to augment the abiding misery, poverty, and other insanitary circumstances in which the great mass of English people lived; while he at the same time reviews for us the several influences which in successive epochs have tended to alleviate suffering and to promote sanitary welfare. Perhaps the most noteworthy chapters in this regard are those which are devoted to the study of the conditions which, after the lapse of many centuries, established Humanity as an abiding factor in English politics. Here Simon renders homage to the eighteenth century, and shows how much cause sanitary workers of the present day have to be grateful to men who, like Wesley, introduced high ideals of conduct into popular thought, or like Howard set a conspicuous example of self-sacrifice in philanthropy, or like Wilberforce showed that when the public conscience is awakened neither privilege nor political scheming can stand against it.

It is in connexion with the eighteenth century likewise that Simon has to tell us of the labours of early masters of British preventive medicine—Pringle, Lind, Stephen Hales, Blane, Baker, and Jenner. We are tempted to quote, both for its philosophy and for the benefit of any reader unacquainted with Simon's style, the passage in which he pays "alms for oblivion" for these departed heroes.

"It is a favourite reflexion among philosophers, that, if departed great benefactors of our race could now and then look down on the harvest-fields where mankind age after age is gladdened by the fruits of their labour, they would in general find themselves less remembered than perhaps their terrestrial ambitions had desired. Doubtless this is so; but let the noble compensation be noted that often the thoroughness of a reformer's victory is that which most makes silence of the reformer's fame. For how can men be adequately thankful for redemptions when they have no present easy standard, no contrast between yesterday and to-day, by which to measure the greatness of them? And to some readers that reflexion may well occur at this present point as they say their *Benedicite* for our workers of the eighteenth century. Of the present generation who in summer holidays enjoy their draught of cider in Devonshire, not many know that Baker unpoisoned it for them. Of those who go down to the sea in ships, not many have reading and imagination enough to contrast the sea life which now is with the sea life which was suffered in Anson's days and to be grateful for Lind and Blane who made the difference. And in some cases ignorance best tells its tale by swaggering against the truce which protects it. At the anti-vaccination meetings of which we now occasionally read, where some pragmatical quack pretends to be making mincemeat of Jenner, how small would become the voice of the orator and how abruptly would the meeting dissolve itself if but for a moment the leash were away with which Jenner's genius holds back the pestilence, and small-pox could start into form before the meeting as our grandfathers saw it but a century ago."

In insisting upon the historical and literary quality of "English Sanitary Institutions" we would not seem to ignore the peculiar value of the second half of the volume, which in part constitutes a book of reference, written by one whose life-work is his authority, to the several administrative measures and social changes which in the Victorian era have produced the complex sanitary organisations of the country; in other part also is an appreciative summary of the work of the great sanitarians within that period; and above all, is of value in its critical discussions of the relations which have subsisted and which should subsist between Medicine and the State. Those who have at heart the right guidance of medical politics and the success of public health administration cannot fail to be acquainted with this history and criticism, as Simon gave it in 1890, and as with few modifications he still presents it. Needless to say, the record of the legislature and of successive administrations of recent times is not greatly to the taste of one who so pre-eminently has shown the way of national duty in matters sanitary, and whose fate it has been to prophesy—unhappily with accuracy—the ill which would follow the neglects and shortcomings of various legislative and administrative acts. Simon's censure here falls largely upon the Local Government Board, which when established in 1871 might have become the office of a true ministry of health for the country but which, through political blundering and administrative shortsightedness, deliberately reduced to the minimum its medical and sanitary functions and thus from the onset rendered itself impotent for many of the functions which should be exercised by a board responsible for the sanitary welfare of the kingdom.

Simon's warm tribute to the excellence of the work conducted by successive medical officers and members of the medical staff of the Local Government Board in our view lends all the greater force to his objections. Why, for example, when successive Governments have had at command in the medical department of the Local Government Board such a store of medical knowledge and so great an experience of sanitary administration have they compelled us to witness blunderings such as have characterised the dealings of that Board with questions of vaccination?

We must not end this brief welcome of the new edition of this book without reference to two appendices—one philosophical, the other polemical—which appear in it. Both are reprints of magazine articles written by the author since the first edition was published.

LIBRARY TABLE.

Transactions of the American Ophthalmological Society. Thirty-third annual meeting, Washington, D.C. 1897. Hartford: Published by the Society.—This report of a meeting of the American Ophthalmological Society, held in Washington, and presided over by Dr. George C. Harlan, contains forty-three articles, many of them of considerable interest. Amongst them are cases of Exophthalmic Goitre and Pulsating Exophthalmos described in detail by Dr James Spalding, Dr. Wm. F. Aiken, Dr. Wm. H. Wilder, and Dr. Swain Burnett. In Dr. Spalding's case both eyes had to be extirpated owing to the supervention of panophthalmitis. In Dr. Burnett's case the cause of the exophthalmos was sarcoma of the dura mater. Dr. Lucien Howe gives the pathology of chronic membranous conjunctivitis. In cases under his care diplo- and strepto-cocci were found as well as staphylococci and the Löffler bacilli. He thinks the diagnosis of conjunctival and corneal inflammation should be founded on bacteriological investigation. The same writer advocates in another article the general adoption of Crédé's method of preventing purulent ophthalmia in new-born children. Dr. W. F. Norris reports a case of Ivory Exostosis which was completely removed from the roof of the right orbit. Dr. E. Jackson describes a case of Intra-ocular Enchondroma springing from the Choroid. Dr. W. Johnson gives a case of Angio-sarcoma, apparently of retinal origin, which is illustrated by several plates. Several cases are recorded by Dr. William Thomson and Dr. Charles Oliver of foreign bodies in the eye, the presence and position of which were accurately determined by the use of the Roentgen rays; the apparatus devised by Dr. Sweet for this purpose and the mode of its application are described. Valuable papers are those by Dr. Weeks on that form of Retinitis which has received the name of Retinitis proliferans and by Dr. Edward Fridenberg on Retinitis circinata. Dr. de Schweinitz gives several cases with illustrations of Toxic Amblyopia, and Dr. James A. Spalding four cases of Optic Atrophy.

Lastly, Dr. Oliver describes the ophthalmic changes in Chlorosis, Pernicious Anæmia, and Leucocythæmia.

Annales d'Oculistique. Publiées par les Docteurs E. SULZER et E. VALUDE. Soixantième Année. Tome cxviii., sixième livraison. December, 1897. Paris: A. Maloine.—The original articles in this number of the Annals are: 1. Dr. P. Pansier on Hysterical Amaurosis; Diplopia and Polygonal Vision. In the course of this article an amusing account of the absent mindedness of Ampère is given. This distinguished mathematician and physicist one day sallied from his house with a problem in his head and a piece of chalk in his hand. A cab stopped in front of him and he began to jot down his figures on the back of it. The cab drove on, the philosopher trotted after it, and recommenced to write when it stopped. A friendly passer-by at length carried him off amidst the laughter of the crowd. 2. Dr. A. Trousseau on Sponge-Grafting for the purpose of obtaining a Good Stump after Enucleation of the Eye. 3. Dr. Boucheron on Sérothérapie or Treatment by means of Injections of Antitoxic Lymph in cases of Abscess of the Lacrymal Sac. The lymph used was the anti-streptococcic serum of Marmorek, 4 to 6 c.c. of which were hypodermically injected daily into the abdomen. 30 c.c. were injected altogether and recovery took place in less than a week. 4. Dr. J. Duclos records a case of Double Circular Rupture of the Choroid in the Horizontal Meridian with Detachment of the Retina. 5. Dr. L. de Wecker describes the operation of Sphincterectomy of the Iris.

Chemistry for Photographers. By CHAS. F. TOWNSEND, F.C.S., F.R.P.S. London: Dawbarn and Ward. 1897. Crown 8vo. Pp. 158. Price 1*s.* net.—This is a good little book full of practical details and common sense. A beginner in photography could have no better guide, for it explains the meaning of each step in the processes of developing and printing and shows why this or that manipulation is necessary. The experienced photographer also cannot read the book without profit and advantage. There are fifteen chapters, each dealing with a separate section of photographic work, and the bichromate printing processes, printing in silver, in iron, and in platinum, and orthochromatism are all carefully considered. The last eighteen pages are devoted to a "cyclopædic index" of formulæ, solubilities in water and alcohol, and symbols, with references to what has been written in the body of the work respecting the various substances enumerated. The chapter on developers is especially good and the advantages or disadvantages of the newer developers are clearly set forth. We notice that rodinal is mentioned as being an useful developer for x-ray work and this we consider to be a valuable hint. X-ray work has compelled a number of people to learn something about development, and they require a developer which will bring up all the detail possible in a plate which is probably under-exposed and will also give good contrast and density and be simple to work with. Rodinal probably meets these requirements as well as any developer known.

Leonis XIII. Carmina Novissima. Ex typis S. Joannis et S. Augustini. Romæ: 1897. (*Leo XIII.'s Latest Poems.* From the Printing Office of S. John and S. Augustine. Rome: 1897.)—The reigning Pontiff, it is well known, beguiles the scanty leisure he allows himself with Latin versification and from time to time gives to the world a little volume of such "nugæ metricæ" as he thinks best worth preserving. Sometimes, indeed, he does not wait till he has thrown off enough of these to make up a volume, but if the "metrical trifle" is at once opportune and happy he sends it forth independently. One of these fugitive pieces came into our hands last summer and was noticed[1] under the title of "The Pope on Diet"—a subject on which Leo XIII. writes at once playfully and instructively and, after his Horatian model, tells us the articles of food and drink he has found conducive to the "green old age" of which he is a striking exemplar. In the volume before us we recognise our friend of last summer and, re-perusing it with the attention its official dress demands, we are still more convinced of its sound sense, its practical tone, its man-of-the-world wisdom, and its "happy finish" (*curiosa felicitas*) of style. We can follow the author through every "note" of the dietetic "scale" and are quite prepared for the "harmony" of its results. Let nothing enter the stomach or even pass the lips that is open to the slightest suspicion of "adulteration" is a rule of his to which THE LANCET from its youth up has striven to get the British public to conform; and that other rule, that while the "ingesta" must be "purissima" they must be consumed in moderation, is also one it has never failed to enforce. At the dinner table the Pope would allow the guest the "option of milk" and justifies its use on the ground that—

> "Nil vitale magis, nil lacte salubrius; infans
> Qui lac suxisti, senior bene lacte valebis."

(Nothing is more life-giving, nothing wholesomer than milk; you who as an infant have sucked it will maintain your health on it in old age.) Not that he has any quarrel with wine; on the contrary, he counsels—

> "Apponi in mensa jubeas purissima vina;
> Et, vacuus curis, grato præcordia potu
> Demulce et recrea, convivas inter amicos.
> Sobrius at caveas, nimium ne crede lyæo."

(Order the very purest wine for your table; and, free from care, soothe and refresh your vitals with the pleasant beverage, in the company of friends; but in all sobriety, taking care not to rely too much on it as a restorative.) Leo XIII., following the custom of his compatriots, recommends a cup of black coffee after dinner, but is careful to omit the *chasse*:

> "Postremo e tostis succedat potio bacis
> Quas tibi Moka ferax e litore mittit Eoo:
> Nigrantem laticem sensim summisque labellis
> Sorbilla; dulcis stomachum bene molliet haustus."

(To wind up, let there follow the beverage made from the roasted berries which fertile Mocha sends you from the eastern shore; sip the black liquid gradually and with the margin of the lips; the agreeable draught will gently influence the stomach.) This brings us to the end of the first part of the poem; the remaining half is a vivacious serio-comic description of what to shun in eating and drinking. Excess—

> "Ingluvies, crudelis et improba Siren"—

is religiously to be avoided if we would escape the premature collapse of body and mind that overtakes the gourmand. There are other poems in the volume, appealing, however, rather *ad clerum* than to the medical reader, and to these we give a general recommendation, singling out the fine Sapphic Ode on the conversion of France to Christianity as a proof that even as a Latin versifier Leo XIII. is not inferior to Nicholas V. or to Pius II. or to Urban VIII. among his predecessors—or, indeed, to any of the contemporary *dilettanti* who court the "dulce periculum" of imitating Horace.

[1] THE LANCET, June 5th, 1897.

JOURNALS.

Transactions of the British Institute of Preventive Medicine. London: Macmillan and Co., Limited. 1897.—This the first volume of transactions of the Institute opens with an introduction by Lord Lister giving a short account of the work of the Institute since its foundation in July, 1891. The premises which have been occupied up to now in Great Russell-street are only temporary but the new buildings at Chelsea are expected to be soon ready for occupation. The papers in the present volume of transactions are nine

in number, all of which except one deal with bacteriological matters, the exception being a note on a Peculiar Movement of Certain Intra-cellular Particles in Yeast Cells, by Dr. W. St. C. Symmers of Aberdeen. Dr. A. Macfadyen and Dr. R. T. Hewlett contribute an interesting paper on the Sterilisation of Milk. The milk was passed through a double set of heating and cooling coils so that it was twice heated and twice cooled. Though not rendered absolutely sterile pathogenic organisms sown in the milk were destroyed. The temperature used in the hot coils was 70° C. Mr. Joseph Lunt contributes a research upon the sterilising of water by means of the Berkefeld filter. The paper is very long and full but the main result arrived at and the one of most interest to householders was that the filter should be cleaned and sterilised once a week. Dr. Macfadyen and Mr. Lunt publish the results of some researches into the amount of bacteria and dust present in ordinary town air. The quantities of the former were reassuringly low for in the dust of a room among 184,000,000 particles of dust there was only one organism detected.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., ADAM SEDGWICK, F.R.S., and W. F. R. WELDON, F.R.S. London: J. and A. Churchill, 1897. April and December Numbers. Price 10*s.* each.—The April number of this journal (accidentally overlooked) contains the conclusion of Professors Grassi and Sandias' article on the Constitution and Development of the Society of Termites, an article that contains many curious details in regard to the habits of these highly developed insects, such for example as the nature of their food (which may be particles of decayed wood or the materials disgorged by their fellows, the dejecta of their fellows, the dead bodies of their own or other colonies, or the salivary secretion of their fellows), the production of complementary royal personages, and other points in their life history—a very valuable and interesting series of researches. An account is also given of the parasitic protozoa of the termitidæ. The next article is by Miss Margaret C. Collcutt, of University College laboratory, on the Structure of Hydractinia Echinata, with one plate. Mr. J. T. Cunningham contributes a paper on the Histology of the Ovary and of the Ovarian Ova in Certain Marine Fishes, with three plates. Other articles are by Dr. A. Willey on Ptychodera flava, with a plate; by Mr. Edwin Goodrich on the Nephridia of the Polychæta, including those of the Genera Hesione, Tyrrhena, and Nephthys, with four plates; by Dr. A. Willey on the Pre-ocular and Post-ocular Tentacles and Osphradia of the Nautilus; and lastly, by the same writer, Heteroplana, a New Species of Planarians.—The December number contains three memoirs: (1) a Note on a New British Echiuroid Gephyrean, with remarks on the Genera Thalassema and Hamingia, by Dr. W. A. Herdman, F.R.S., of University College, Liverpool, with two plates; (2) the Placentation of Perameles, being a first contribution to the Embryology of the Marsupialia, by Mr. James P. Hill, of Sydney, New South Wales, with five plates; and (3) on the Green Pigment of the Intestinal Wall of the Annelid Chaetopterus, by Professor E. Ray Lankester, with four plates.

Archives de Physiologie. Publiées par MM. BOUCHARD, CHAUVEAU, and MARCY. Cinquième série, Tome IX., No. 3. Juillet, 1897.—This number contains nineteen articles, amongst the more important of which are those by M. C. Rouget on the Structure of the Terminal Plates of Motor Nerves in the Higher Vertebrata, with three plates; by M. G. Weiss, on the Functional Adaptation of Muscles, in which the author is opposed to some of the conclusions drawn by the late Rev. Professor Haughton in his work on "Animal Mechanics"; by M. B. Danilewski, Researches on the Excitation of Nerves by Electric Rays; by Dr. H. Bordier on the Laws of Sensory Shocks in Man deduced from Experiment; by MM. A. Charrin and E. Bardier, on the Influence of Toxines on the Heart, the experiments being chiefly made on the frog, rabbit, and guinea-pig; by MM. Doyon and Dufourt, a Contribution to the Study of the Bile—the authors appear not to have seen the report by Professor Rutherford and Mr. Vignal of their experiments; by M. Alezais, on the Urine of the Guinea-pig; by MM. C. Bohr and V. Henriques, Experimental Researches on the Production of Carbon Dioxide and the Consumption of Oxygen in the Lungs (Pulmonary Combustion); and by MM. Hedon and J. Ville, on the Digestion and Absorption of Fats after the Formation of a Biliary Fistula and Extirpation of the Pancreas. One of the above-named authors, M. Hedon, has an article on the Rôle of the Pancreatic Juice and of the Bile in the Absorption of Fats; MM. C. François-Franck and L. Hallion contribute an article on the Circulation and Vaso-motor Innervation of the Pancreas; M. J. H. Keiffer describes the Glandular Function of the Uterus; M. C. Delezenne gives the results of his experiments on the Action of the Serum of the Eel and of the Extracts of Various Organs on the Coagulation of the Blood; and there are also some short accounts of New Instruments for registering the weight of the body (by M. G. Weiss) and for noting the movements of the heart, the last being devised by M. Bardier. Finally, there is an article on Accurate Stereoscopy applied to Radiography.

New Inventions.

A NEW CHOLECYSTOTOMY SPOON.

I HAVE often found that the spoons in use present drawbacks. They are frequently too large and generally too thick, and unless the operator possess a graduated series the opening in the gall-bladder has to be accommodated to the size of the spoon, which in many cases means that it is larger than necessary—a very important point when it is the intention to close both the bladder and parietal wounds without drainage. Messrs. Arnold and Sons have made to my instructions an instrument in which the spoon part is formed of malleable wire, which admits of its being pressed by the fingers into the necessary breadth, so that in cases where the calculi are small a very much smaller opening than usual is sufficient. The stem portion is also sufficiently flexible to allow the gall-bladder to be easily reached when it is awkwardly placed, as by being tucked up deeply under the liver and held by adhesions, and is yet firm enough not to bend too readily. It should answer as well in removing the smaller calculi from the urinary bladder in lithotomy. It is designed less for use in hospitals than for surgeons who carry their operation-bags with them and to whom *multum in parvo* is a desideratum.

Bishop Auckland. MARK WARDLE, L.R.C.P. & S. Edin.

THE LANCET.

LONDON: SATURDAY, JANUARY 8, 1898.

THE attitude of the Government in regard to the recent proposals which a Select Committee drew up after sitting for three sessions is feeble in the extreme—indeed, we fail to see how except in a few particulars the Bill to be introduced in the forthcoming session can be regarded seriously as amending the Acts relating to the sale of food and drugs. The Bill prepared and brought in by Mr. KEARLEY, Sir JAMES WOODHOUSE, Mr. HORACE PLUNKETT, Mr. LAMBERT, Mr. JEFFREYS, Mr. NICOL, Mr. CHANNING, Mr. LOUGH, and Mr. MAURICE HEALY, which was printed in January, 1897, was a much more comprehensive measure and certainly in closer line with the recommendations of the Food Products Committee. This Bill, however, "to Consolidate and Amend the Law relating to the Sale of Food and Drugs" was evidently abandoned. We certainly anticipated in a leading article in THE LANCET of March 6th, 1897, that the proposed new measure would when introduced meet with considerable opposition, but we did not think that practically all the recommendations of the Select Committee would be rejected; yet a glance at the new Bill will show that this is so. The new Bill will certainly "consolidate" the law relating to the sale of food and drugs, but we cannot accept it as offering any important amendment. And this is the outcome of the labours of a committee which was appointed in 1894, which sat for three sessions, and which collected an enormous mass of evidence from a great number of witnesses from all parts of the country, who gave all the information they could possibly afford upon just those matters which the committee was appointed to consider.

We cannot help thinking that the recommendations embodied in the first Bill have scared the Government. It is true that the clauses in this Bill, especially in some instances, were severe, but as we have before remarked no one can say honestly that what were described in its provisions as offences were wrongly or unjustly so described. Now on consulting the twenty-sixth annual report of the Local Government Board for 1896-97 we find that the Government have placed themselves in this matter in a somewhat anomalous position. In this report occurs the statement that "it is more than probable that this [referring to the percentage of samples of milk reported against] does not represent the full extent of milk adulteration in England, for, as we have before remarked, public analysts adopt a very low standard so that injustice may not be inflicted upon vendors of poor but genuine milk." It is added that "the standard of some analysts is open to comment." Again, analysts have reported to the Local Government Board that where a milk is returned as adulterated with three or four per cent. of added water the actual mixture is much larger, probably nearer 15 or 20 per cent. Another sample which was certified as containing 20 per cent. of added water (we are still quoting the Local Government Board report) "was a very poor sample and just came within the very low standard which we are obliged to adopt." Another analyst confessed that where there is any doubt about watering or abstracting cream he takes as his standard a milk so poor that normal milk never falls below it. The Local Government Board admit that this establishment of so low a standard "affords an opportunity to unscrupulous traders to add to their milk a considerable quantity of water or of separated milk from which nearly every particle of fat has been extracted by machinery." In spite of this admission the new Bill provides nothing to mend matters in this very important direction. In the same report mention is made of the increasing practice of adding preservatives to milk and in some instances the proportion was very large; yet, again, the Bill provides no definite remedy against this practice. Finally, this section of the report concludes with the very significant remark that "it is a matter for regret that London has not yet been successful in bringing down its high rate of milk adulteration." Surely this in itself is a powerful appeal that the provisions of the Act should be strengthened.

The fact is, the most important recommendation of the Select Committee on Food Products Adulteration has been absolutely rejected. In effect this was that an authority should be constituted which should act as a court of reference upon scientific and other questions arising under the Acts and which should be empowered at its discretion to prescribe standards and limits of the quality and purity of food. As an outcome of this proposal the Committee refrained from making any definite recommendations on the questions of standards, colouring matters, preservatives, and on those additions to food which may be lawfully permitted. The new Bill, therefore, in ignoring this proposal to establish a court of reference leaves the administration of the Sale of Food and Drugs Act much in the position it was in regard to the use of preservatives in food, to the addition of colouring matters to food, and to the important question as to those articles which may be rightly defined as food and which may therefore be controlled under the provisions of the Act. The new Bill contains no amendment at all of the definition of the word food. As is well known, the present definition of food, according to a remarkable judgment of the High Court, enables injurious, adulterated, or objectionable baking powders and certain other commodities to be sold with impunity, on the absurd contention that they are not themselves food, despite the fact that they are sold for the sole and deliberate purpose of being introduced into food and consumed with such. There are other important points omitted in the new Bill with which we have not now space to deal. We may point out, however, another incongruity which appears from a comparison of the Local Government Board report and the new Bill. The Local Government Board admit that the local authorities are in many instances to blame for the high rate of adulteration on account of neglecting to take a sufficient number of samples. This of course could be obviated if pressure were brought successfully to bear upon the authorities thus concerned, and it might be expected that

THE LANCET RELIEF FUND.

For Members of the Medical Profession and their Widows and Orphans when in Distress.

——:o:——

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THE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE PRESIDENT OF THE GENERAL MEDICAL COUNCIL.

THOMAS WAKLEY, F.R.C.S. Eng.

THOMAS WAKLEY, Jun., L.R.C.P. Lond.

HON. AUDITOR.

SIR HENRY PITMAN, M.D. Camb., F.R.C.P.

——:o:——

THIS FUND will be provided year by year in the month of January to the amount of at least £300 solely by the Proprietors of THE LANCET, and administered free of cost, for the purpose of affording immediate pecuniary assistance to Medical Men, or their Widows and Orphans, *in cases of Acute Distress and Emergency*, by the grant of money by way of loans free of interest, or gifts, as the circumstances of the various cases may require.

Applicants must satisfy the Almoners of the Fund that they are qualified under the following regulation:—

* "The recipients shall be such persons as satisfy the Almoners that they possess one or other of the following qualifications—that is to say: (*a*) That the applicant holds a registered medical qualification, and that he has fallen into pressing need of immediate pecuniary relief; or (*b*) That they are persons who have been, previously to the date of application, legitimately dependent upon some person holding a registered medical qualification, and that they have pressing need of immediate pecuniary relief."

(*In the case of Widows and Orphans, in order to come within the scope of the Fund, the death of the Husband or Father must have been of recent occurrence.*)

To ensure the utmost despatch, the "Application Form" upon the other side should be filled up and forwarded (in an envelope superscribed "THE LANCET Relief Fund") to the Secretary, Mr. EDWARD DAVIES, THE LANCET Offices, Strand, London, W.C.

The application should be accompanied by two separate testimonials, one from the Clergyman of the Parish or other resident Minister of religion, and one from a registered Medical Practitioner, stating—that the application addressed to the Almoners has been read, how long they have known the applicant, and that they believe the statement to be perfectly truthful, and such as may be acted upon without further inquiry.

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APPLICATION FORM.

To the Almoners of the Lancet Relief Fund.

The applicant should here state shortly:—

1. The nature of the emergency that has arisen.

2. The circumstances out of which it has arisen.

3. The amount of the grant desired, and whether by way of loan (free of interest) or of gift.

4. If by way of loan, state when the loan will be repaid; and from what source the funds to repay it are expected to be forthcoming.

5. Whether the applicant is entitled or able in the circumstances which have arisen to look to any other source of assistance; and if so, what is the expected nature and extent of such assistance.

6. Whether the applicant is receiving, or has received during the past six months, pecuniary aid from any Medical Charity.

7. State how the applicant is qualified to receive assistance; vide regulation* on first page.

8. Particulars of:

Applicant's age _____

Number in family _____

How many are self-supporting _____

How many are partially dependent _____

How many wholly dependent _____

Applicant's Signature _____

Address _____

_____

Date _____

No. _____

THE LANCET RELIEF FUND.

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Considered _____

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Date _____

the new Bill would provide a clause compelling the authorities to avail themselves of the fullest advantages afforded by the Act. But it is not so, no means being provided or suggested for enforcing the performance of that which is recognised as a duty.

No body has given greater attention, time, and zeal to the question of a pure food-supply for the people than the Society of Public Analysts, the members of which in their public capacity were acknowledged by the Select Committee as having carried out their duties efficiently and well. The public analyst is of course in a position every day which enables him to remark with no uncertainty the defects of the Act, and the circular dealing with the new Bill which the Council of the Society of Public Analysts have recently issued is therefore worthy of deliberate and serious consideration. We are in practical accord with their opinions—(1) that the draft Bill is unsatisfactory inasmuch as it does not embody the most important recommendations of the Food Products Adulteration Committee, and that if passed it would not lead to the removal of the difficulties experienced in carrying out the present Sale of Food and Drugs Act; (2) that the recommendations of the Food Products Committee, subject to but few modifications, should be embodied in any Bill which may be put before Parliament during the coming session; and (3) that the most important recommendation referring to the formation of the court of reference should be acted upon if new legislation is to lead to satisfactory results. For ourselves we believe that all those who are interested in the maintenance of a pure food-supply will share in these opinions and we earnestly hope that the time and energy that have been spent upon this subject will not be thrown away by passing the feeble measure which, we presume, it is intended to introduce in the next session of Parliament. In our opinion the Bill is not in accordance with public requirements or with the necessities of the case.

WE have already given our readers the figures of the Numerical Summary of the Members of the Medical Profession in Great Britain as contained in that most useful work, CHURCHILL'S Medical Directory. But the facts will justify a little more attention than we could bestow on them in a short annotation. The overcrowded profession has become more overcrowded in the year that is past, so that there are in the Directory for 1898 619 more practitioners than there were in the Directory for 1897. This is a substantial addition, remaining after allowance for those whose deaths are reported or whose names have in any other way been removed from the Register, and one which cannot fail to add to the sense of pressure and competition which has done so much to lower the public estimate of medical services. We are furnished with a table on page 2 of the Directory which gives the numbers of increase for each of the past ten years. The highest numbers were in 1894, amounting to no less than 1013 over the numbers in the Directory for the preceding year. Last year the increase of the numbers in the Directory over those of the Directory for the year preceding was 958. The average annual increase for each of the ten years included in the table is roughly 675. We may take what consolation is to be got out of the fact that the increase for last year is the lowest recorded increase for five years, lower than the average of ten years by 56, and lower than the average annual addition of the last five years by 229. Such figures may show that the ever-increasing difficulties of the examinations, the extension of the curriculum to five years, and the accumulating proofs of the inadequate rewards of the profession are slowly having their natural effect in deterring young men from entering it in the crowds which of late years have been so noticeable. But it is too soon to believe that any adequate check has been given to the over-supply and we must still regard the addition of 619 in one year to the ranks of the profession as one justified by no corresponding additions to the population or to its medical wants. The continued addition of over six hundred a year to the profession may at any rate reassure the General Medical Council that in their recent cautious endeavours to add to the stringency of those Preliminary Examinations, which are supposed to guard the entrance to the profession, they are not likely to cause any risk to the public from a defective supply of medical men.

We have heard much of late of the mortality of medical men and of its comparing unfavourably with that of other professional classes. Meantime the evidence of the Directory on this point is not unsatisfactory. As we reported last week the number of deaths recorded in the obituary of the Directory for this year is 599, which for a total profession of 34,284—the number in the Directory of 1897—gives an average mortality of about 1·75 per cent., a number that does not seem excessive when the labour and the risks of our arduous and perilous profession are taken into account. The distribution of the profession is by no means regular or according to population. Thus the four and a half millions of London, speaking roughly, have 6081 medical men to minister to their necessities, while the slightly larger population of Ireland has only 2615, or much less than half. It does not follow that the profession in the wealthier community is as much better off as the greater wealth would imply or that the public is so much benefited as the greater numbers of medical attendants would suggest. The very numbers take from the appreciation of the profession and people are apt to prize more that which is scarce and distant. Still there can be no doubt that medical men could do something to diminish the disadvantage of their excessive numbers by distributing themselves more equally.

It remains to answer a curious and interesting question, Why do men crowd into a profession in which, and in the study of which, there is much to deter? The offence of the dissecting-room at the very outset, contact with the sorrowful and suffering side of life, hard work and scanty leisure, with poor financial rewards, are not attractive features. Dr. JOHNSON is said to have described the work of the profession as a melancholy attendance on misery, a mean submission to peevishness and a total interruption to pleasure. Yet men in a luxurious age crowd into it and BOSWELL tells us that JOHNSON had in general a peculiar pleasure in the company of physicians. In attempting to account for the increasing numbers of the profession we may put something down to the wealth of

the age and the natural preference of educated men for professions as compared with mere commercial pursuits. We have lately heard a distinguished divine lament that so many men took to the study of medicine who should have given themselves to the Church—much to the impoverishment of the Church. We should gladly spare the Church some of our superfluous numbers. But we will not affect to be surprised at the preference. It is possible to be as religious in the one calling as in the other. After early difficulties have been overcome the study of medicine and of the fundamental sciences of it is fascinating beyond that of most other subjects. Then too the practice of medicine, if not rewarded by large fortunes—and, as JOHNSON himself pointed out, it seldom is—is not always the melancholy business he described. It is largely an attendance on recovering and grateful patients who are themselves an interesting study. That so many young men should be attracted to such pursuits is a redeeming and creditable fact in an age of much that is unsatisfactory to the moralist. The processes of medical education—we do not say medical examination—are distinctly interesting to the most thoughtful minds. All we need to do is to eliminate at an early stage the unfit and the medical profession will continue to be one of the best callings both in itself and as an avenue to many forms of higher culture.

IN the report on the Chemical and Bacteriological Analyses of the Farleigh water-supply just presented to the chairman of the Sanitary Committee of the Maidstone Town Council by Mr. M. ADAMS, the medical officer of health of Maidstone, and Dr. J. W. WASHBOURN there is most interesting reading for those who have a concern in the health of the public. After dealing with the question of the date at which samples were taken — i.e., during the height of the epidemic — and the relation of this date to the probability of finding infective material remaining in the water the writers of the report proceed to discuss the methods by which they have arrived at the conclusion that, although they could not find any evidence of specific contamination, there was evidence of pollution by animal organic matter or sewage and that the occurrence of specific infection was not by any means impossible or even improbable. With respect to the value of the chemical and bacteriological analyses both are agreed that "proof of pollution of water may be obtained either from chemical or from bacteriological examination."

In his preliminary remarks Mr. ADAMS draws attention to the fact that, owing to the different character of the gathering grounds and springs, the nature and amount of dissolved matter extracted vary considerably, the local characteristics leading to an infinite variety of composition in natural spring water. "It therefore," he says, "becomes essential to have an intimate knowledge of the normal composition of the pure water of the district before it is possible to form an accurate estimate as to the purity of any sample from a source within such district." This is a point too often lost sight of in these investigations, but it is one that Mr. ADAMS now turns to good account. Having as the result of his long experience constructed a local standard, which he gives for comparison with results obtained from the analyses made for the purposes of this report, he proceeds to point out that the main points—three in number—to be borne in mind are the following: (1) "That except within very narrow limits there should be no departure whatever; (2) that departure from the standard signifies pollution; and (3) that the nature of the pollution *though of a harmless sort one day* may be changed for a *dangerous sort another*." In these three propositions is contained the gist of all chemical answers to questions which have to be settled in determining whether any water is being polluted or is at any time liable to specific infection; and every medical officer of health who has had to deal with the question of the interpretation of the results of water analysis will recognise how pertinent and important they are. It may be accepted almost as an axiom that any water which at all seasons and under varying conditions remains unaltered for, say, twelve months may be looked upon as a "permanently" good water; whilst any water from whatever source which undergoes even slight changes as regards its mineral and organic constituents in solution must be recognised as a water which, though not necessarily actually polluted, is always open to suspicion from the fact that it is open to contamination—sometimes, of course, of a specific nature. Even slight irregular variations are more important than the presence of moderate but invariable quantities of certain substances which are sometimes supposed to indicate by their presence a certain amount of contamination. Working on this basis Mr. ADAMS finds that in most of the waters (twenty-two in number) which he examined in connexion with this inquiry there was a distinct departure from the local standard as regards the amount of oxidised nitrogen — nitrates and nitrites — in every sample but one, and that albuminoid ammonia was in considerable excess in at least five of them. The exact meaning of the various changes recorded can only be grasped by those who have access to all the circumstances involved in the Maidstone outbreak, but the interest attaching to the general questions discussed is one that will be appreciated by all medical officers of health.

With respect to the bacteriological examination two points will strike even the most superficial observer: (1) that bacteriological examination often serves to bring to light faults in the water that are not discriminated by the chemist—the converse also holding good—and (2) that bacteriological examination may often clinch suspicious features in the chemical analysis. Dr. WASHBOURN in his preliminary remarks maintains that the number of bacteria in water gives some indication of its purity, whilst recognising that "it is impossible to make an arbitrary limit as to the number of bacteria which is to be taken as the standard of purity," this varying with the natural characteristics of the water. He accepts KOCH'S dictum that a water containing fewer than 100 bacteria in the cubic centimetre may be considered to be a good water provided the bacteria present are the ordinary water bacteria. For evidence of sewage pollution Dr. WASHBOURN depends on the information afforded by the presence or absence of bacteria belonging to the "coli" group, but even this factor is not accepted in its entirety as Dr. WASHBOURN states "that the presence of one or two

coli bacteria in 100 c.c. of water is probably not a matter of much importance" although "the presence of a large number (such, for example, as the sixty colonies in the c.c.) in one of the samples examined is a definite proof of contamination with animal excreta." As the result of comparing Mr. ADAMS'S conclusions with Dr. WASHBOURN'S it is found that the chemical and bacteriological data point to a central pollution in several of the springs and supplies; indeed the rise in the number of micro-organisms per cubic centimetre follows actually but not proportionately each marked increase in the amount of albuminoid ammonia. This agreement between the results of chemical and bacteriological investigation is of great interest, as are many other details contained in the report, with which we may ere long have further opportunities of dealing.

Annotations.

"Ne quid nimis."

THE REPRESENTATION OF DENTISTS UPON THE GENERAL MEDICAL COUNCIL.

THE desirability of a dentist, of course holding full medical qualifications, having a seat upon the General Medical Council is amply apparent to everyone who has watched the conduct of dental business during the sittings of that body and apart from the abstract justice of the case it is a matter in which the general body of medical men have an indirect interest, as it would conduce to the saving of the time and the energies of that body, already fully taxed by the mass of business which comes before it. The reasons why this is desirable have been forcibly set forth by Mr. Victor Horsley in his address lately published in these pages, and also by two letters which have recently appeared in the *Times*. Briefly the reasons are these. The keeping of the Dentists' Register has been placed by Act of Parliament in the hands of the General Medical Council; there are about 5000 registered dentists who, to say nothing of the large sum contributed by the initial registration, at the present time provide some £600 a year to the funds administered by the Council, yet have no direct representative. Much time and many slight or sometimes important false steps—which sometimes cannot, and sometimes can and have been, rectified—might be saved by the presence of someone very thoroughly conversant with the ins and outs of the dental questions which come before the Council. But there is a practical difficulty in the way; it is not to be expected that the general body of medical men will give, by a majority of their votes, one of the few seats devoted to their direct representatives to a dentist, however well qualified he might be to take part in the general business of the Council, nor is it particularly likely that one of the licensing bodies would nominate one as their representative. When the Acts under which the General Medical Council is constituted were passed the power of nominating five members was retained by the Crown acting under the advice of the Privy Council, and it has been forcibly contended that the intent of giving to the Privy Council a free hand in nominating a certain number of members was to enable them to place upon the Council men otherwise desirable but who had not, perhaps could not readily obtain, a seat by other methods. Now not one word can be said against the personal qualifications of those gentlemen upon whom the choice of the Privy Council has fallen in the past and in the present; the roll is one of very eminent names. It may be remarked that the Privy Council have with very few exceptions not gone far afield in making their nominations, generally placing upon the General Medical Council just such persons as might well have been returned by one or other of the Royal Colleges of Physicians or Surgeons, and so, in effect, have given to sometimes one and sometimes another of these bodies an increased representation; the exceptions have been mostly gentlemen occupied in the department of public health and they have, we think, most properly been given seats. And it is suggested that in these nominations the Privy Council has acted precisely upon the lines intended when the Crown nominations were reserved to them, and that were they to nominate a dentist holding full medical qualifications they would be acting upon similar lines and would be redressing an anomalous state of things which has arisen from nobody's fault but through the force of circumstances. The contention seems eminently reasonable, and we hope that the Privy Council may see its force, for it appears to be just such a case as was contemplated when a certain number of nominations, to be independent of the licensing bodies and the vote of the general body of the profession, were set aside.

THE LANCET RELIEF FUND.

THE Almoners of this Fund have made their report for the year 1897 of which a copy will be found in another part of this impression of THE LANCET. Upon a comparison of this report with that which appeared last year the most striking feature is the reduced aggregate amount of the benefactions. This is the more remarkable because it results not alone from the reduction in the number of recipients but also from a reduction in the average amount of the grants which fell from £12 in 1896 to something under £9 in 1897. Both these indications point to the satisfactory conclusion that upon the whole the cases of emergency brought during this past year to the notice of the Almoners have been less severe than during the previous twelve months and these are corroborated by the additional circumstance that although the number of cases relieved fell from 29 to 22, the number of applicants showed no diminution, standing, by a curious coincidence, precisely at 37 in either year. In discussing the Almoners' report last year we pointed out that the trend of the figures over the eight years during which the Fund had then been administered showed that gifts are upon the whole more serviceable than loans in that class of cases with which the Almoners have to deal. The ninth report confirms this conclusion, bringing out an even greater disparity between the two classes of grants, the result being still in favour of gifts. Yet the opportunity of making loans affords to the Almoners of the Fund the means of very greatly increasing its usefulness. In the first place there are many cases in which the recipient would shrink from accepting a gift who is glad enough, and properly glad, to accept the benefit of a loan. And in the second place the repayments made in respect of loans become a source of income to the Fund, enabling the money so bestowed to do double or even multiple duty. It is indeed not a little remarkable how steady this source of income is. It was augmented last year by one comparatively large repayment of £10, but that apart it stood at almost the same figure in 1896 as in 1897. This work, as we have before remarked, is so intimately associated with THE LANCET that we feel ourselves privileged when noticing it to express our heartfelt thanks to the Almoners and the Auditor who have during the past year officiated in the administration of the Fund. To Sir Samuel Wilks, President of the Royal College of Physicians of London, to Sir William MacCormac, President of the Royal College of Surgeons of England, and to Sir Richard Quain, President of the General Medical Council, who have

assisted in the disbursement of the Fund and personally interested themselves in its work of charity, to Sir Henry Pitman, who from the commencement of the Fund has audited the accounts, and to the many brother practitioners throughout the country who have undertaken the duty of investigating on the spot and advising upon the merits of applications we tender our hearty thanks for their valuable and gracious help in the cause of our distressed brethren and their dependents. The application form of THE LANCET Relief Fund will be found in our present issue and can be readily detached should occasion arise for its use. We again take the opportunity of asking those of our readers who may have occasion to employ the form or to sign one of the required accompanying certificates to carefully note the conditions on which applicants become entitled to a participation in the benefits of the Fund. All applications should be made (in writing) to the Secretary, Mr. Edward Davies, THE LANCET Offices, 423, Strand, London.

THE OLD STORY.

ONE more example, and that a very distressing one, of the foolishness of playing with firearms has come to hand. Upon New Year's night a party of young people were assembled together at Kirk Ella, a village near Hull, and were playing at dumb charades. One of the chosen words was "suicide," and it fell to the turn of a boy, aged sixteen years, to act the complete word, which he did by putting a pistol to his head and pulling the trigger. A report followed and the unfortunate boy fell with a bullet in his brain. Of course the pistol was supposed not to be loaded, but as has been said over and over again any firearm should always be handled as if it were loaded. The poor boy was taken home and the x rays were used for ascertaining the position of the bullet which was quite clearly seen. These accidents will, we suppose, continue to happen, and the mere fact of them being so easily preventable makes them all the more distressing. We can only express our sympathy with the relatives of the victim, who has, we regret to learn, succumbed to his injuries.

THE CLINICAL AND PATHOLOGICAL INTERPRETATION OF "TIC."

IN the *Medical News* (New York) of Dec. 11th, 1897, is a well-written paper by Dr. Joseph Collins, Professor of Nervous and Mental Diseases in the New York Post-Graduate Medical School, on the Clinical and Pathological Interpretation of Tic with Special Reference to its Treatment, a subject which, as Dr. Collins remarks, has received entirely inadequate consideration. This paper is well worth perusal; we can only give a brief abstract of it here and would refer those of our readers who desire further information to the original article. The word "tic" as here used means literally a twitching. It is applied to an abrupt, rapid, and usually uncontrollable movement, the result of abnormal contraction of individual muscles or groups of muscles which usually act together to fulfil some physiological purpose. It has been difficult for some to believe that the ordinary tics are not in reality habits, while others have unfortunately considered the tics as a typical manifestation of chorea, and the phrase "a kind of chorea" has been applied to them. The writer, however, considers that tic has nothing in common with chorea. He further says that it is important to understand that the term, although it suggests only the most prominent symptom, oftentimes bespeaks an abnormality of the nervous system quite as demonstrable as those to which the terms epilepsy, hysteria, and migraine are applied. The twitchings to which the term tic may be applied vary in severity from the slightest movement of a part up to the "most complex coördinated movement associated with obsession and the externalisation of mental activity." All tics may be classified primarily into (1) senile (acquired) tic, and (2) early tic, the last being further divided into two varieties—viz., (*a*) degenerative and (*b*) acquired. These various forms are then fully considered with illustrative cases and the treatment is fully entered into. Dr. Collins in conclusion says that he has endeavoured to show that tic is in the majority of cases a degenerative neurosis of which the twitching is the most prominent outward manifestation, just as hemi-anæsthesia is a "stigma" of degeneration in hysteria; that its next most common stigmata are psychic and consist of compulsions, obsessions, and possessions; that tic occurs in individuals who have stigmata of degeneration; and that it is one of the degenerative diseases which develops early. He does not contend that all forms of tic are of the degenerative kind or the concomitant of a degenerated neurosis. On the contrary he emphasises that simple motor tic, as for instance tic of the musculature of the seventh nerve, is often a reflex condition dependent upon irritation of some of the branches of the fifth nerve, that in elderly persons it is often associated with degeneration of the blood-vessels, and that in the young it is sometimes seen with perverted states of nutrition, and that it recovers when these are overcome. Furthermore, Dr. Collins reiterates that tic has nothing in common with chorea, that the term chorea should never be thought of in connexion with this disease, and finally that tic being in a majority of instances a degenerative neurosis it conforms, in occurrence, in development, in progression, and in obstinacy and unresponsiveness to treatment with other degenerating diseases. With regard to treatment Dr. Collins concludes that the same principles should guide us as in the treatment of hysteria, epilepsy, and congenital defects in general, and in his experience the salts of copper and silver, when given in comparatively large doses and for a prolonged time, while the bodily health and the general *morale* are cared for, are more efficacious in the degenerative form than other therapeutic measures.

THE NEW YEAR HONOURS.

FOLLOWING after the Jubilee Honours of last year the New Year's list has the appearance of being unduly small and six only of the recipients are members of the medical profession. It is noticeable that while the New Year's list for 1897 was essentially English and the Jubilee list Irish the present list is a Scotch one, four gentlemen possessing Scotch degrees, one English and one Irish. John Struthers, M.D., F.R.C.S. Edin., LL.D. Glasg., upon whom has been conferred a knighthood in recognition of his late official position as President of the Royal College of Surgeons of Edinburgh, is a member of the General Medical Council and his well-merited honour will receive the unanimous approval of the profession. A knighthood, too, has been bestowed upon John Batty Tuke, M.D., F.R.C.P., F.R.S. Edin., President of the Royal College of Physicians of Edinburgh, who is also a member of the General Medical Council. His work—practical and literary—in connexion with insanity is well known to the profession and although he receives the honour of knighthood by virtue of his official position the reward is a well-earned one. William Tennant Gairdner, LL.D., M.D., F.R.C.P. Edin., F.R.S., Physician-in-Ordinary to Her Majesty the Queen in Scotland and Dean of the Medical Faculty of Glasgow University, has been created a Knight Commander of the Bath. He, too, is a Member of the General Medical Council. So far the Civil List. Among the promotions in the most Eminent Order of the Indian Empire will be found the name of Brigade-Surgeon-Lieutenant-Colonel George King, C.I.E., who has been raised to a Knight Commander.

Surgeon-Lieutenant-Colonel Samuel John Thomson and Surgeon-Major Frederick Fitzgerald MacCartie are appointed to be Companions of the same Order.

ISO-KREATININE.

THIS body has recently been isolated in the form of definite yellow crystals from the muscles of the cod fish by Dr. Thesen of Christiania. It differs from ordinary kreatinine as was pointed out in an annotation in THE LANCET of Dec. 1st, 1897, in various particulars, but it reduces Fehling's alkaline solution of copper. This interesting property, although we expressed curiosity about it in the annotation referred to, was as a matter of fact observed in Dr. Thesen's paper. On adding Fehling's solution to a solution of iso-kreatinine an intensified blue colour is produced, and on heating the solution to 80° C. it eventually turns brown from the reduction and separation of copper.

SAD DEATH OF A HOUSE SURGEON.

We regret to announce the death of Mr. W. H. J. Paterson, M.R.C.S. Eng., L.R.C.P. Lond., one of the house surgeons to St. Thomas's Hospital. It appears that Mr. Paterson was apparently in his usual health on Dec. 26th, but on the following evening he complained of feeling unwell, and then some jaundice was observed. He visited his wards on the 28th, but was unable to do so on the 29th; the jaundice had deepened and the temperature rose at night to 104°F. No reason for suspecting an unfavourable ending to the illness manifested itself until the 31st, when after a short period of mild delirium he passed into a state of coma and died on Jan. 2nd. During the last two days of the illness a rapid diminution in the size of the liver was apparent. Mr. Paterson was completing the second period of his office as house surgeon, having already been assistant house surgeon and house physician. A special service was held in the hospital chapel at 1.30 P.M. on the 6th inst., at which members of the staff, many students, nurses, and other friends of the deceased were present.

ENDOGENOUS FIBRES IN THE LUMBO-SACRAL REGION OF THE CORD.

IN the recently issued autumn number of *Brain* Dr. Alexander Bruce gives an interesting description of two tracts in the lumbo-sacral region of the cord containing what have been named by Marie "endogenous fibres." These fibres occur in the posterior columns of the cord and are so named because they are derived from cells in the cord itself and do not originate in the posterior roots. One of these tracts named the cornu-commissural tract lies in the anterior part of the posterior column in close apposition to the posterior commissure and septum and in part to the surface of the cord. The second, the septo-marginal tract, as its name indicates, has a close relation to the posterior median septum. The cornu-commissural tract does not degenerate in locomotor ataxia even in its advanced stages, or in injury to, or compression of, the cauda equina. It undergoes degeneration in conditions which lead to atrophy or degeneration of the cells of the posterior cornu. According to Fajersztajn it is composed of fibres of short course, mostly descending, while Déjérine and Spiller maintain that it contains a considerable number of ascending fibres. A series of drawings from sections at different levels shows that this tract attains its greatest size at the level of the lower lumbar region and diminishes somewhat rapidly above, and more gradually below this level. Throughout its whole longitudinal extent it stands in close relation to the posterior commissure and the anterior part of the inner margin of the posterior cornu. Its inner margin below the third lumbar segment lies in contact with the posterior median septum. Above this it is gradually displaced outwards by the ascending fibres of the posterior roots of the lower spinal nerves, as they pass upwards to enter the postero-median column. Posteriorly the tract has no definite margin. Its outer portion merges gradually into the part of the column behind it, while its inner part is continuous with the septo-marginal tract. This tract also remains undegenerated in ataxy and its position corresponds closely with an area of fibres already described by Dr. Bruce and Dr. Robert Muir as degenerated after a crush of the cord at the level of the upper lumbar segments. In the case they record very little degeneration was found in the cornu-commissural tract, indicating that the greater part of the fibres of the latter arise below this level while many of the fibres of the septo-marginal tract have a higher origin. At the level of the lowest sacral root this tract is situated at the postero-internal angle of the posterior column. It is triangular in shape with the angles rounded off, the anterior angle merging into the cornu-commissural tract. Higher up it becomes much narrower and is more elongated antero-posteriorly. At the level of the upper sacral segment the tract is distinctly larger, but at the fifth lumbar segment there is a marked diminution in its extent, and it occupies only about a third of the length of the posterior median fissure and no longer reaches either the cornu-commissural tract or the periphery of the cord. At the fourth lumbar segment there is a further diminution in its size and a change in its position. It has again passed backwards and forms an angular band outlining the postero-internal angle of the cord, and is now separated by a considerable interval from the cornu-commissural tract. The tract gradually diminishes upwards until at the level of the twelfth dorsal segment it is represented by a small group of fibres, somewhat triangular in shape placed at the periphery of the cord quite away from the septum about one-third of the distance between the middle line and the posterior root. As regards the cells from which these two tracts originate it is not yet possible, Dr. Bruce remarks, to make a definite statement. Nor can anything be asserted with certainty as to their function except that they are probably commissural. Their position suggests a connexion with the lower organic reflexes.

DEFECTIVE DRAINS AND POLLUTED WATER.

THE importance of sound drain fittings and connexions has never perhaps before been more forcibly emphasised than during the past six months. The epidemics of enteric fever at Maidstone and at Lynn have afforded excellent but sad object lessons. The same thing of course happens every year on a smaller scale in our rural districts and there is probably not a single medical officer of health who has not had practical experience of the connexion between disease and the pollution of the water-supply from a defective drainage system. Our attention has been drawn to an interesting case of the sort which came under the notice of Mr. Hugh Stott, the medical officer of health of the combined sanitary authority, East Sussex. In this instance the sewer on examination was found to pass the well at a distance of about 30 ft. It consisted of 9 in. glazed socket pipes laid without any jointing material or any regard to fall, some of the pipes being half-filled with silt through having a fall in the wrong direction. The house connexions were said to be in a deplorable condition and we have received a photograph for inspection which quite bears this out. The pipes were telescoped into each other without any clay or jointing at all. Here and there the pipes had been chipped to make them fit (*sic*). Altogether it is quite evident that this was a wicked piece of construction, if construction indeed is a

word that can be applied with any truth to such a job. Of course in most cases of this kind where the pipes were laid perhaps long ago it is impossible to punish the parties responsible for such infamous work, but nowadays our public sanitary authorities are able to enforce the proper and efficient fitting and placing of new drains upon which so much may depend, especially when the water-supply is derived from the ground near at hand.

THE HOME SECRETARY ON THE "VIVISECTION ACT."

THE Home Secretary has recently written a letter to a correspondent on the "Vivisection Act" in which he remarks: "The Act is not a dead letter. Its provisions are most carefully enforced by my office and myself personally, as it was by my predecessors. It is not the case that centres of vivisection are rapidly increasing all over the country or that any operations upon living animals are carried on in this country except under licences, the scientific value of which for the curing of disease is rigidly scrutinised and the conditions most strictly limited and watched under the provisions of the Act." It would be well if certain kindly intentioned folk and others whose words and actions, though nominally inspired by humanity, have a remarkable resemblance to self-advertisement would ponder those words of the Home Secretary. Sir Matthew White Ridley would not have written this letter without being sure of his facts, and the statements controvert all idle talk about the frequent infringements of the Act and the gross cruelty or idle curiosity of the operators. Licences can only be obtained to perform operations *the scientific value of which for the curing of disease has been rigidly scrutinised*. In reference to possibilities of secret evasions of the Act the Home Secretary says that the point might form the difficulty in the administration of the law, but, in our opinion, the risk of vivisection being performed in secret and without a licence is very small.

"THE FEDERATION FOR THE ABOLITION OF THE STATE REGULATION OF VICE."

THE courageous and sensible action of Lady Henry Somerset in writing to the *Times* of April 21st, 1897, proposing a scheme for safeguarding the health of soldiers in India with regard to the most virulent and far-reaching form of infectious disease naturally created a great stir among those who oppose "regulation." Among these were the members of the British Women's Temperance Association of which body Lady Henry Somerset was president. So great was the feeling that she resigned her position of president, although the executive committee asked her to re-consider her determination seeing that the chief object of the association was temperance. The larger organisation, the World's Women's Christian Temperance Union, however, elected Mrs. Josephine Butler as superintendent of its Purity Department some years ago but in October, 1897, re-elected Lady Henry Somerset as a vice-president, whereupon Mrs. Butler resigned her post as superintendent. The executive committee of the Federation for the Abolition of the State Regulation of Vice have accordingly just passed a resolution applauding Mrs. Josephine Butler for her action but expressing the opinion that the action of the World's Women's Temperance Christian Union confuses the public sentiment and is injurious to the principles of "this committee." Mr. James Stuart has communicated all these facts to the public in a letter to the press. We have expressed our opinion over and over again as to the necessity for dealing with this form of infectious disease in some similar method to that in which other infections are met, and we need not repeat the arguments now. To return to the resolutions of the executive committee the last one runs as follows:

"And this committee expresses its determination to continue the most uncompromising warfare against regulation in all forms and under every name and by whomsoever maintained."

This strikes us as a somewhat sweeping resolution. The abolition of "regulation" in all forms and under every name would no doubt be pleasant for a time if it could be universally carried out, but until the millennium arrives we doubt its practicability. Probably the executive committee do not read such frivolous books as the "Water Babies," but they might look up the history of the Doasyoulikes and see what happened to them or, if they prefer a more serious example, let them consult the Book of Judges and study the state of a community where "every man did that which was right in his own eyes."

THE CINEMATOGRAPH AGAIN.

AN accident—or "alarming incident," as it is called by the *Huddersfield Daily Examiner*—which attended the Christmas entertainment at the Huddersfield Infirmary should make organisers of charitable entertainments pause before allowing the cinematograph to be included among the attractions they provide. The entertainment was held in one of the wards, and whilst the expectant audience of patients, friends, nurses, and servants was waiting for the appearance of the "living pictures" a blaze of flame shot from the apparatus to the alarm of the children and female section of the audience, who, but for the prompt action of the attendant in charge of the cinematograph, would have rushed headlong from the room. Owing to a "leak in the alum tank of the apparatus the liquid escaped and caused the film, which had become overheated, to ignite." We feel sure that the kind-hearted ladies who annually delight to entertain the patients of the Huddersfield Infirmary took pains to see that the cinematograph was in competent hands. But this seeming security serves but to emphasise the dangers of the apparatus. For if accidents occur when every care is taken, what is to be expected if a careless or incompetent operator should perchance be the exhibitor? It is not many months since a panic occurred at Baildon, near Bradford, owing to the explosion or ignition of a cinematograph; moreover, the lesson of the Paris disaster is recent enough and should be deeply kept in remembrance by all amateur organisers of entertainments.

PUTRID PLEURISY: PNEUMOTHORAX FROM DECOMPOSITION.

THE possibility of pneumothorax arising from gaseous decomposition of effusion, doubted by some, appears to have been established by a number of communications recently made to the Société Médicale des Hôpitaux. To MM. Widal and Nobecourt is due the credit of having demonstrated the fact. In a case of pyo-pneumothorax on account of the dyspnœa and pain a litre of fœtid pus was removed by puncture. The relief was not great. On the next day a bright-red tumefaction which crepitated to the touch had formed around the puncture. Before further operation could be performed the patient died. A necropsy showed that the left pleura, was covered with false membranes and contained a large quantity of extremely fœtid sanious pus mixed with gas. No trace of gangrene could be found in the lung or the pleura and the former showed no lesion of any kind. The fluid previously removed had been examined immediately and showed several varieties of cocci and bacilli. Subcutaneous inoculation of a guinea-pig produced a gaseous, gangrenous abscess pointing to the conclusion that the production of gas in the pleural sac was similarly due to infection of the subcutaneous tissue by

the germs in the pleura on the withdrawal of the needle and not mechanically to the introduction of gas. This was further borne out by the fact that the tumefaction did not develop until several hours after puncture. MM. Widal and Nobecourt drew attention to the fact—the importance of which in this connexion does not seem to have been realised—that gaseous decomposition in the living body has long been recognised in spreading gangrene. The existence in the above case of fœtid pleurisy without gangrene of lung or pleura is noteworthy. Two other such cases in which also gaseous abscess formed after puncture were reported at the following meeting of the society. In one, under the care of M. Achard, the empyema was drained and washed out and the patient recovered. There was no fœtor of the breath or other sign of gangrene. The other, under the care of M. Courtois-Suffit, terminated fatally and the necropsy gave exactly the same results as in the first case. Fœtid pleurisy must be distinguished from that condition known as primary gangrene of the pleura, described in 1875 by M. Besnier, in which the lung is entirely unaffected. But it is possible that the former condition may in time produce the latter. At the same meeting M. Galliard read an important paper on Subcutaneous Emphysema Consecutive to Puncture of Pneumothorax. He principally referred to the form in which the emphysema was due to the passage of the gas from the pleura into the subcutaneous tissue. There were but few cases known. It was distinguished by the appearance of the emphysema immediately after puncture. Still more rarely the same result had been produced spontaneously by ulcerative perforation of the pleura and intercostal muscles.

BURIAL v. SANITATION.

THE condition of our public cemeteries has recently become a subject of unfavourable comment among various metropolitan local authorities and in the daily press. For certain reasons we are thankful that this is the case. There can be no question that such comment is in no small degree justified, for it may be freely admitted that in no place has the progress of sanitary reform been slower than in our public burial grounds. Time and space would fail us were we to attempt here any exhaustive examination of the controversy, now a quarter of a century old, as to the relative advantages of burial and cremation. Our present object is rather to discuss the means by which the ordinary method of interment may become as innocuous to the living population and as efficient for its proper purpose as it is now inadequate and capable of becoming injurious. The important questions of site, soil, and environment in this connexion are generally recognised. If in some cases they appear to have been overlooked this is due as much to a choice compelled by necessity and to the encroachments of a rapidly-growing city as to original faults of judgment. It is probable also that too much has been made in some instances of the dangers attributed to a town-surrounded cemetery. On the other hand, it is indisputable that gross errors of method prevail within the precincts of every burial-ground, and that while these enjoy the sanction of unwholesome custom any great advance in the direction of healthy reform is impossible. Among such errors the wooden coffin must ever take the first place. It is the answer of a blind prejudice to nature's final claim that burial shall imply disintegration and that this work shall be done in her own time and manner. For twenty years or more the principle of direct burial without the intervention of any but the lightest and most perishable covering has been widely and ably advocated in this country. Still the thick elm or oaken shell, strengthened often by an inner metal case, forms almost invariably the last home of mortal man. It is needless to state that burial under such conditions is as prodigal of the earth's surface as it can well be. Re-interments if permitted can only be allowed where a grave is deep, and even then they imply a needlessly retarded, concentrated, and therefore aggravated process of decay. In this connexion it is interesting to recall to mind the experiments carried out by Mr. (now Sir Francis) Seymour Haden and referred to in THE LANCET of April 4th, 1896 (p. 938). The result of these was to show that the disintegration of buried animals was rapid and complete in proportion to the superficiality of their earthy covering. In this case the earth and air, it would appear, act as absorbents of gaseous and other products of putrefaction, somewhat after the manner of an absorbent surgical dressing, and apparently without much offence by effluvia. In this way also the work of nitrification is most efficiently carried out by the surface earth, which in little more than a year fully does its duty as a place of burial. Surely no further argument is needed to prove that "earth to earth," all trade interests and prejudices notwithstanding, denotes our only possible means of sanitary interment. It has been proposed that an inquiry should be instituted by the Home Office into the relation of town cemeteries to the public health. In this proposal we heartily concur, but we would add as a most important object in any such inquiry the consideration of the method or methods which are advisable for safe and healthy burial.

WISE GENEROSITY.

AN anonymous donor has given £25,000 to the London Hospital for the building of a new out-patients' department outside the hospital. The offer is made on two conditions—one that the patients pay a small sum towards the cost of the medicine or dressings supplied and the other that hospital letters shall be done away with. This latter condition will meet with the approval of every sensible person. The system of hospital letters is bad in every way; it converts what should be charity into a commercial speculation—i.e., the donor of a guinea expects so many letters and feels offended if he does not get them, and again these very letters are in most cases distributed with no sort of regard to the merits or demerits of the case. What happens? A patient who is no object for charity comes up armed with a letter and is rightly refused treatment. Result—the patient considers himself or herself insulted, and so does the "governor" whose name is on the letter. Of course there are subscribers who take a sensible view of matters and also take trouble to see that their letters shall only go to deserving objects but often the reverse is the case. At a large hospital like the London Hospital cases of this kind are rare; it is the smaller charitable institutions which are most prone to offend, but it is all the more creditable that a charity like the London Hospital should set an example which before long we hope to see followed everywhere. The London Hospital serves an enormous area, does its work well, and has always kept before its eyes a very high standard as to what a hospital should be, so that we offer our congratulations to all its staff, both medical and lay.

THE WATER-SUPPLY OF CHICAGO.

THIS city, as our readers are aware,[1] draws its water-supply from Lake Michigan by means of intakes situated at various distances from the shore, and the results of the analyses of these waters made during 1895 and 1896 are very interesting. The bacillus coli communis was by no means a rarity in the bacteriological examinations, and the tests to which another organism responded raised grave suspicion as to the presence of the bacillus of enteric fever. As a general rule the water obtained from the four-mile intake gave the best results, while those obtained from the intakes two miles out

[1] Vide the Report of THE LANCET Special Sanitary Commission of Inquiry concerning the Water-supply of Chicago, U.S.A. (THE LANCET April 8th, 1893).

in the lake were of an inferior quality. The average of the chemical and bacteriological analyses showed the Chicago water to be "suspicious" in quality, and all that can be said of the water from the four-mile intake is that its degree of contamination is less than that from the other intakes. There is, it appears, an area of contaminated water along the lake front and although under favourable conditions this area extends only a short distance from the shore it may, after heavy rains and certain winds, spread a very considerable distance—in fact, for several miles out into the lake; so, at least, would seem to be the indications from the analyses. Furthermore, it was discovered that during 1896 sudden and unaccountable pollutions were noticed in all the sources of supply, but more especially from the four-mile intake. It seems that these sudden pollutions were due to the "dumpings" of dredgings conveyed in barges out into the lake. As a result of these analyses no "dumpings" are allowed over a specified area, while efforts are being made to prevent the sewage of Chicago from polluting the lake water.

NEUROLOGICAL SOCIETY: THE PRESIDENTIAL ADDRESS.

THE Presidential address will be delivered to the Neurological Society at 11, Chandos-street, on Thursday next, the 13th inst., at 8.30 P.M. by the newly-elected President, Mr. Victor Horsley, on the Degree of Discharge of Different Nerve Centres. It promises to be one of great interest and will consist of two parts, the first dealing with the methods of estimating the degree of discharge of nerve energy from the cortical and spinal centres, and the second giving an account of observations of work done by a muscle when its contraction is initiated from the cortex cerebri and spinal cord respectively. The address will be illustrated by lantern slides exhibiting the graphic tracings obtained in the course of the investigation, and doubtless the results which they show will have considerable interest for neurologists and also for all who are interested in the physiological aspects of the nervous system.

THE SURGICAL TREATMENT OF SUPPURATIVE PERICARDITIS.

DR. JOHN B. ROBERTS has published in the *American Journal of Medical Sciences*, December, 1897, an important paper on this subject. He deprecates tapping as both ineffectual and dangerous. In one case as many as ten aspirations had to be performed in thirty-four days; then death occurred. The heart has often been punctured, sometimes from a mistaken diagnosis, sometimes because it was adherent to the anterior wall of the pericardium; fluid confined behind the heart by adhesions cannot be evacuated. The prognosis after incision is good provided it is done early and there are no serious complications. An exploratory aspiration to determine the presence of pus should first be performed. The pleura is in danger of injury from puncture in the usual situations. From anatomical researches, following Delorme and Mignon, Dr. Roberts recommends that the needle should be thrust upwards and a little inwards in the upper part of the left xiphoid fossa. If pus is found he recommends resection of the thorax in the following manner: two vertical excisions are made, one about a centimetre to the left of the middle line of the sternum and the other four or five centimetres external to this. The fourth and fifth costal cartilages are exposed at their sternal junctions and divided. Care must be taken not to puncture the pleura. The soft tissues in the fourth and fifth spaces and along the upper border of the sternum are cut through. The trap-door so formed is raised and the mediastinal tissues are separated. The triangularis sterni and internal mammary vessels are then exposed. The former is divided close to the sternum within the line of the latter. With the finger or blunt instrument the fascia and muscular fibres are separated and the vessels and pleura pushed outwards. The white surface of the pericardium comes into view and is incised. If irrigation is employed two tubes should be used, one for exit. The drainage-tubes can pass through the fifth space or through a hole in the fourth.

WHAT IS VITALITY?

MR. HERBERT SPENCER'S definition of the nature of life implies, as is well known, a continuous adjustment of internal to external relations. In other words, vitality is preserved by interactions going on between the constituents of the protoplasm. On the face of it this view must be very materially modified in the light of some exceedingly interesting experiments recently brought to the notice of the Royal Society by Mr. Horace Brown, whose classic researches on that interesting class of ferments the enzymes are well known. He has found that by submitting seeds to the very low temperature of evaporating liquid air—i.e., from −183° C. to −192° C.—for 110 consecutive hours their power of germinating is not in any way impaired. Since the above temperature is considerably below that at which ordinary chemical reactions take place the result is very remarkable and would appear to show that although a state of complete chemical inertness in protoplasm may be established it does not necessarily lead to a destruction of its potential activity. Is the protoplasm thus brought to a "resting" condition to burst into activity on restoring favourable conditions? If so, what becomes of life during this "rest"? These observations are also of interest in connexion with the suggestion of Lord Kelvin that the origin of life as we know it may have been extra-terrestrial and due to the "moss-grown fragments from the ruins of another world" which reached the earth as meteorites. That such fragments might circulate in the intense cold of space for a perfectly indefinite period without prejudice to their freight of seeds or spores is, Mr. Horace Brown remarks, almost certain from the facts we know about the maintenance of life by "resting" protoplasm; the difficulties in the way of accepting such a hypothesis certainly do not lie in this direction. Here is an interesting problem for biologists and the development of the question will be followed with the keenest interest.

WE wish we could say that the epidemic of plague in India showed signs of ceasing, but such is not the case as will be seen by reference to our correspondent's special notes. Since our last report telegraphic intelligence has reached this country to the effect that there has been a serious recrudescence of the disease in Bombay where, according to the accounts in the Anglo-Indian journals received by the last mail, fresh attacks of plague were occurring daily and the mortality rate from other causes was also much above the average. At Poona the disease was still very prevalent in the city, suburbs and district, and cases were occurring at Sholapore, and in the Jullundur and Lahore districts of the Punjab, but the disease was not spreading there. We are glad to hear the work done by medical officers spoken of on all sides in eulogistic terms.

AT the meeting of the Medical Society of London on Monday next a discussion on Adherent Pericardium will be opened by Sir William Broadbent, Bart., M.D. Lond., who will be followed by Sir R. Douglas Powell, Bart., M.D. Lond., Dr. John Broadbent, Dr. W. Ewart, and Dr. S. West.

WE understand that Dr. Charlton Bastian, F.R.S., has

been requested by the solicitors of the Treasury to investigate and report upon the mental condition of R. A. Prince who has been committed for trial at the Central Criminal Court on the charge of murdering Mr. William Terriss.

H.R.H. THE DUCHESS OF YORK has consented that the board of management of the East London Hospital for Children, Shadwell, shall name the new convalescent home at Bognor the "Princess Mary Convalescent Home" in memory of the late Duchess of Teck.

THE Spring Lectures at the National Hospital for the Paralysed and Epileptic will commence on Tuesday, Jan. 11th, with an address by Dr. Beevor, at 3.30 P.M., on "Cerebral Localisation."

THE death is announced of Professor Zakharin, the eminent Russian physician, which has just occurred at Moscow.

REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD, 1896-97.

FIRST NOTICE.

SIR RICHARD THORNE is to be congratulated on the early appearance of his report of 1896-97, more especially as it contains matter of considerable interest. That part of the volume which has reference to glycerinated calf lymph we have already dealt with and it will not therefore be necessary in the two notices which we shall devote to the report to refer to the subject further. In connexion, however, with vaccination it may be noted, although with much regret, that from the last return of the vaccination officers to which the report relates it appears that only 70·4 per cent. of the children born during 1894 were accounted for by vaccination, no less than 17·5 per cent. of the remainder having been entered as "removed" or "not to be traced." These latter figures would seem to indicate that the communication between vaccination officers is not of such a satisfactory nature as is contemplated by the Board's instructions to these officers. The number of births not finally accounted for amounted to 20·6 in the metropolis and 19·0 in the provinces. In addition to the details with regard to vaccination in the several unions throughout the country, Appendix A of the volume contains certain reports by the medical inspectors of the Board, while in Appendix B is a record of the scientific investigations conducted at the instance of Sir Richard Thorne.

An outbreak of enteric fever at Bicester, in Oxfordshire, which is reported upon by Dr. Theodore Thomson, affords yet another instance of the manner in which nature asserts her dominion over defaulting sanitary authorities who have neglected to provide their district with a supply of water not liable to become specifically polluted despite the fact that they have been warned of the dangers which are incurred by such omission. We may commend to the ratepayers of Bicester a little homily in the current volume of the *National Review* on "Suicide by Typhoid Fever." Dr. Deane Sweeting's report on an outbreak of diphtheria in the Gillingham urban district has been inserted into the volume, Sir Richard Thorne tells us, in order to illustrate the importance of a medical officer of health, in matters relating to school closure, acting in strict accordance with the code of regulations issued by the Lords of the Committee of Council on Education, which provide, among other things, that the school managers must at once comply with any notice of the sanitary authority of the district in which the school is situated. In the case in question the medical officer of health tendered verbal advice to the School Board and as a consequence friction and unpleasantness eventually arose. Sir Richard Thorne points out that it is only by the notices of the sanitary authority or two of its members acting upon the advice of their medical officer of health that school closure can legally be brought about. Dr. G. S. Buchanan contributes two reports to the volume under review, one on an outbreak of illness at Mansfield caused by the consumption of "potted meats" the other on certain cases of bubonic plague which occurred in the Port of London in 1896. Two of the cases were Goanese "knifemen," or stewards' helpers, on board an ocean-going vessel which had recently returned from Bombay, and the history of both cases was such as to leave little doubt that infection must have been derived from certain infected articles from Bombay which were unpacked only after the arrival of the vessel in London waters.

Not the least interesting report from a purely epidemiological aspect is that by Dr. Bulstrode on an outbreak of enteric fever at Chichester. It is interesting more particularly because certain provisional conclusions arrived at by Dr. Bulstrode have become in large part confirmed by bacteriological investigations conducted by Dr. Sidney Martin into the behaviour of enteric fever bacilli in the soil of Chichester. Enteric fever appears to have been in the past practically endemic in this district and several reports have been written upon this endemicity. Some have regarded the recent outbreak as due to a new system of sewerage, but a thesis of this nature, in addition to its inherent improbability on general principles, receives no support from a study of the distribution of the disease either in the past or recently. From such a study it is clear that before the system in question was introduced, and before, too, the public water-supply was instituted, enteric fever, to at least an equal extent, has from time to time invaded the district, on each occasion the same localities being picked out with remarkable uniformity. It would seem, indeed, that the polluted soil of Chichester has been in the main responsible for the endemicity of enteric fever hereabouts and the result of Dr. Sidney Martin's researches, which are contained in Appendix B of the volume before us, are such as to lend considerable support to this view; indeed, these experiments as far as they go open up fresh avenues of thought and speculation. The thesis that the endemicity of enteric fever is due to the persistence and periodical sprouting in the soil of the enteric fever bacillus is in no sense new. As early as 1877 Mr. W. H. Power, F.R.S., in a report to the Local Government Board, clearly foreshadowed what now seems to be in a fair way to be experimentally demonstrated, and in an address recently delivered before the Midland Medical Society, which was reprinted in full in our columns on Nov. 6th last year, Sir Richard Thorne deals in a comprehensive and lucid manner with this aspect of the question under the title of "Soil and Circumstance in their Control of Pathogenic Organisms." In connexion with the subject of enteric fever at Chichester attention may be drawn to three maps and a chart which are contained in the report, and which show the distribution of enteric fever in the counties of England and in North and South Wales during the decennial periods 1871-80 and 1881-90. The enormous fall in every instance is very graphically depicted and the manner in which on the maps the colour used to denote the lowest incidence in 1871-80 has become generally diffused in the map relating to the next decennial period is very instructive. The county of Durham heads the list for its excessive enteric fever rate in both periods, and Yorkshire, Lancashire, Nottingham, and Northamptonshire retain places in both periods which are the reverse of complimentary. The remarkable fall in the case of every other county suggests that there have been at work influences which are not generally classed as amongst those to which the term "sanitary" can be properly applied.

TYPHOID FEVER AT CAMBORNE.—At the meeting of the Camborne Urban District Council held on Dec. 31st, 1897, Mr. Telfer Thomas, L.R.C.P. Lond., M.R.C.S. Eng., the medical officer of health, reported an outbreak of typhoid fever in the district. The first case was notified on Dec. 4th and since then 84 cases had been notified, mostly in children and young adults. The affected houses were only in those districts which were supplied with water by the Camborne Water Company. Mr. Thomas added that he had visited the company's reservoirs at Blackrock and as a result had sent a letter to the secretary of the company stating that it appeared evident the surface waters of Tregoning hamlet and the drainage from the fields adjoining must ultimately find their way into the leat which supplied the larger reservoir. It was eventually decided to ask the water company to meet the council at the reservoirs.

THE LANCET RELIEF FUND.

NINTH ANNUAL REPORT OF THE ALMONERS.

THE LANCET Relief Fund, which has for its Almoners the President of the Royal College of Physicians of London (Sir SAMUEL WILKS, Bart., M.D. Lond., F.R.S.), the President of the Royal College of Surgeons of England (Sir WILLIAM MACCORMAC, Bart.), the President of the General Medical Council (Sir RICHARD QUAIN, Bart., M.D. Lond., F.R.S.), Mr. THOMAS WAKLEY, F.R.C.S. Eng., and Mr. THOMAS WAKLEY, jun., L.R.C.P. Lond., with Sir HENRY PITMAN, M.D. Cantab., F.R.C.P. Lond., as Honorary Auditor, came into operation on the 1st of February, 1889.

In presenting the ninth annual report the Almoners think it well again to direct attention to the object for which the Fund was established.

The Fund is sustained solely by the Proprietors of THE LANCET, who provide every January the sum of at least £300, and is administered free of cost, with the object of affording immediate pecuniary assistance to registered medical practitioners, or to the widows and orphans of members of the profession in cases of distress and emergency, by the grant of money by way of loans free of interest, or gifts, as the circumstances of the various cases may require.

When the Fund was inaugurated considerable misapprehension existed as to the precise objects for which it had been established; and as a result the majority of the earlier applications, being cases of *chronic* distress, and not coming, therefore, under the designation of *emergency*, could not be entertained. Attention was called to this fact in THE LANCET of Feb. 16th, 1889, in the following words:—

"We are requested by the Almoners to state that, from the character of a number of the applications received, both personally and by letter, for relief, it is evident that in many cases the object for which this Fund has been established is not quite clearly understood; and if relief had been afforded in the cases of those who suffer from chronic distress the Fund would have been completely exhausted within the first few days of its existence. They would therefore be greatly obliged if those readers of THE LANCET who may be asked to endorse applications would carefully peruse the Application Form and explain the precise object of the Fund to those applicants whose cases do not seem to come within the scope of the purpose for which the Fund has been established, which is to afford prompt aid to registered medical practitioners, or to the widows or orphans of members of the profession, who, in consequence of the supervention of some unexpected emergency, which is not likely to recur, have pressing need of immediate and temporary pecuniary relief"—and who, it may once more be pointed out, are likely to be permanently benefited thereby.

The balance in hand at the end of 1896 amounted to the sum of £53 9*s.* 10*d.* On Jan. 1st, 1897, the Proprietors of THE LANCET placed to the credit of the Fund the sum of £300. During the course of the year repayments of loans to the amount of £14 have been made. The sum of £194 has been granted in relief either by way of loan or of gift, leaving a balance of £173 5*s.* 8*d.* as per bank pass-book.

There have been considered altogether during the twelve months ending Dec. 31st, 1897, 37 applications for relief (the number the previous year having also been 37). In 22 cases assistance was awarded either as a loan or as a gift, according to the request of the applicant, the amounts of the grants ranging this year from £2 to £15.

The Almoners are glad to find from the number of letters received from recipients of the Fund that it continues to be of service to unfortunate members of the profession, and that the express object of assisting cases of emergency and immediate distress has been attained.

(Signed)

RICHARD QUAIN.	THOMAS WAKLEY.
SAMUEL WILKS.	THOMAS WAKLEY, Jun.

NOTE.—Sir William MacCormac being away from England was unable to be present at the meeting of Almoners or sign the report.

E. DAVIES, Secretary.

Statement of Accounts for the Year ending Dec. 31st, 1897.

DR.

	£	*s.*	*d.*
To Balance at the London and Westminster Bank, Limited (Westminster Branch), Jan. 1st, 1897	53	9	10
,, Proprietors of THE LANCET	300	0	0
,, Repayment of Loans:—			
Case No. 339 ... ... £2 0 0			
,, ,, ... 2 0 0			
,, ,, ... 2 0 0			
,, ,, ... 2 0 0			
,, 361 ... ... 2 10 0			
,, ,, ... 2 10 0			
,, ,, ... 1 0 0			
	14	0	0
	£367	9	10
To Balance at Bank	£173	5	8

CR.

	£	*s.*	*d.*	£	*s.*	*d.*
By Loans:—						
Case No. 349	10	0	0			
,, 359	15	0	0			
,, 361	15	0	0			
				40	0	0
By Gifts:—						
Case No. 346	5	0	0			
,, 348	10	0	0			
,, 352	5	0	0			
,, 355	5	0	0			
,, 356	5	0	0			
,, 358	5	0	0			
,, 360	15	0	0			
,, 363	15	0	0			
,, 358	5	0	0			
,, 365	2	0	0			
,, 367	10	0	0			
,, 368	2	0	0			
,, 369	10	0	0			
,, 371	10	0	0			
,, 373	15	0	0			
,, 374	10	0	0			
,, 377	10	0	0			
,, 378	10	0	0			
,, 379	5	0	0			
				154	0	0
,, Cheque Book				...	...	4 2
,, Balance at Bank, Dec. 31st, 1897				173	5	8
				£367	9	10

I find by the Bankers' Book that the actual balance on Jan. 1st, 1897, to the credit of the Fund was £53 9*s.* 10*d.*, to which the sum of £300 was added by the Proprietors of THE LANCET on Jan. 1st, 1897.

The balance at the Bank at the present date is the sum of £173 5*s.* 8*d.* I have also checked the receipts for disbursements and find the above account strictly accurate.

December 30th, 1897.

HENRY A. PITMAN, Hon. Auditor.

PROGRAMME OF THE NINTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

IT will be remembered that the Ninth International Congress of Hygiene and Demography was to have met last year at Madrid. The disturbed condition of Spain, due more particularly to the insurrection in Cuba and the Philippine Islands, rendered a postponement of the Congress inevitable. It is now announced, however, that the Congress will meet this year at Madrid from the 10th to the 17th of April. A preliminary programme has been drawn up by the "General Committee of Propaganda and Organisation." Dr. Amalio Grimeno, professor of the Madrid Faculty of Medicine, senator, and member of the Academy of Medicine, is the general secretary of the Congress. All communications should be addressed to Dr. Amalio Grimeno, at the Ministry of the Interior, Madrid. Papers that are to be read to the Congress must be written either in Spanish, Portuguese, Italian, French, English, or German, as these are to be the official languages of the Congress. In all cases these papers must be accompanied by a short summary either in Spanish or in French. It is further said that such papers should have been sent in by Jan. 1st; but considering the shortness of the notice it is anticipated that some exceptions will be made, at least for the more distant countries. Of course no paper that has already been communicated to any other society will be accepted.

The Congress is open to the delegates of governments, municipalities, and other local authorities, universities, academies, scientific societies, and special schools. Further, all persons who are specially engaged in the study of questions relating to hygiene or demography and who apply to the organising committee, may take part in the labours of the Congress. But the committee reserves the right of refusing admission where such admission does not seem justified by the circumstances of the case.

Ladies, wives or relatives of the members of the Congress, will not be considered as members unless they can produce a medical diploma or some other official title connected with the science of hygiene or demography. Those ladies who cannot fulfil these conditions will nevertheless be able to enjoy all the advantages given to the members of the Congress, such as journeys, excursions, invitations, and entertainments, on payment of a subscription of 10 pesetas (8*s.*). The subscription for full members of the Congress is 25 pesetas (£1) and should be sent to the treasurer, Sénor Pablo Ruiz de Velasco, president of the Chamber of Commerce, Madrid.

There will be an exhibition in connexion with the Congress to be divided into ten classes—namely, didactic hygiene, the prophylaxis of transmittible diseases, town hygiene, home hygiene, the hygiene of exercise and of work, military and naval hygiene, the hygiene of schools and of childhood, the hygiene of food and of clothing, demography and statistics, and miscellaneous.

The Congress is divided into ten sections for hygiene which in a great measure correspond with those of the exhibition and in three sections for demography. The first section will deal especially with bacteriology—the culture, classification, &c., of pathogenic bacteria. There is to be a discussion on the most recent discoveries with regard to the propagation of enteric fever, cholera, &c., on the means of securing immunisation, on bubonic plague, yellow fever, &c.

The second section will deal with prophylactic measures—the action of the State; compulsory vaccination; the prevalence of leprosy in Spain; pellagra, its cause and prevention; sanitary services on the frontiers; disinfection, &c., in times of epidemic; the prophylactic effects of cremation; and the most economic methods of domestic disinfection.

The third section will discuss medical topography and climatology and afford a good opportunity of obtaining information as to the climatic advantages of the winter stations on the Spanish coast of the Mediterranean. The question will be raised as to whether there is a higher death-rate in rice-growing countries. The connexion of the duration of life with climate and the geographical distribution of tuberculosis will likewise be submitted to this section.

The fourth section will deal with town sanitation—the disposal of sewage, sewage farms, the pathogenic influence of sewer air, filters and public fountains, cheap but healthy houses, public slaughter houses, the microscopic examination of meat, &c. There are two questions somewhat out of the common; the first is an inquiry whether the watering of streets does harm or good and the second as to whether, by the use of chemicals and a system of subsoil drainage it would be possible to disinfect old cemeteries which in consequence of the growth of towns are now surrounded by dwellings.

The fifth section, devoted to alimentary substances, should give rise to interesting debates, for the Spaniards as a great wine-producing and yet a particularly sober people promise several papers on the various processes of preparing and preserving wines, together with the more recent methods of discovering impurities in alcohol. A paper will also be read suggesting that the method of giving prizes at agricultural shows should be altogether altered. The prizes, it will be urged, should be given not for the size and breed of the cattle but for the wholesomeness of the meat.

The sixth section, dealing with the hygiene of childhood, will debate school colonies, maratime sanitoria, the boarding-school as opposed to the day-school, the prophylaxis of ophthalmia, infant mortality, &c.

The questions of physical exercise and labour come up in the seventh section. The labour of women and children in factories, workshops, and mines, Factory Acts, explosions, the sanitary police of mines, the classification of unwholesome industries and kindred subjects are down for discussion. Then there will be papers on sport and cycle riding and the question will be raised at what age can disciplined exercise or gymnastics be substituted for natural, untrained exercise?

In the eighth section military and naval hygiene, the management of troops in tropical climates, their clothing, &c., will be debated. Then there is to be a paper on asepsis under fire and in field ambulances and on disinfection and hygiene on board transport and war ships. Finally, the sanitation of the stoke-hole will claim the attention of the congress.

The ninth section is devoted to the means of preventing the spread of tuberculosis among domestic animals and its transmission to human beings. This is the section for veterinary surgeons and all that relates to animals and cattle.

The tenth is the architectural and engineering section. Here the construction of penitentiaries, asylums, hospitals, crèches, &c., will be investigated and there will be debates on the disposal of town refuse, ventilation and warming of buildings, and the accidents arising from the transmission of electric force.

In the first section of the division devoted to demography the simple, rapid, economical collection of statistics and information is to be discussed. The best methods of drawing diagrams and of teaching demography as applied to hygiene, labour statistics, longevity in connexion with all occupations, the rational and scientific classification of diseases and the unity of such classification are also among the subjects on the programme.

The second section deals with the results to be deduced from available statistics—do they prove an average increase of the duration of human life during the present century? Among the other subjects to be debated are the consequences of marriages between those of near kin, the statistics of prostitution as compared with the frequency of marriages, fecundity in its relation to the age of the parents, statistics as to the average measurement of conscripts, the prevalence of mental diseases and epilepsy in different epochs and countries, &c.

The third section will discuss the migration of populations and its effects on public health; the laws that cause the exaggerated increase of urban populations and how this can be checked; Spanish emigration, its causes and dangers; the evils of absentee rural landowners, their effects on population and public wealth; and the influence of sanitary measures on the physical quality of the populations and the consequences that may arise therefrom. This last question will supply the pessimists with an opportunity of arguing that good sanitation, by securing the survival of the unfit, tends to deteriorate the human race.

Altogether it will be seen that even the preliminary programme suffices to indicate that there will be no lack of interesting subjects for discussion. We trust that Great Britain will be better represented on this than on former occasions. Holding a leading position in the practical

progress of sanitary science Englishmen should make it a point of honour and duty to spread far and wide the knowledge which they have been able to acquire. Great Britain, by reason of its wealth, the absence of crushing military burdens and its political freedom, has been able to do more for practical sanitation than most continental countries. The knowledge we have acquired from actual experience is the most valuable of all knowledge and should not be kept to ourselves. On the other hand, it would be a great mistake to conclude from this that we have nothing to learn on the continent. Though behind us in many respects there are numerous instances where even in regard to sanitation continental nations can set us a good example.

THE INDIAN FRONTIER CAMPAIGN.

THERE is not much to be chronicled in connexion with the Indian frontier war. With the concentration of the first division in the Khyber Pass the active military phase of the expedition closes. The campaign as planned by Sir William Lockhart has been carried out, but the ultimate results of it have not yet been manifested. It is quite true that the Afridi tribes have not after all submitted, but it still remains to be seen whether the neck of their opposition has not been broken and whether they are capable, even if desirous, of engaging in further hostilities on any large scale. They have not yet had time to realise the extent of their losses and what must be the ulterior effects of them, and it is possible that they will submit to terms rather than run the risk of a threatened re-invasion of their country in the spring. Meanwhile the complete submission of the Oraksais has been accomplished, the Khyber Pass has been re-opened, and the whole of the Afridi country has been visited and its defences destroyed. It is clear, however, from the latest operations in the Khyber Pass that the tribes are not sufficiently subdued to desist from attacking us and pursuing their usual tactics. Apart from the great geographical and topographical difficulties of the country, which are all in favour of a defensive and harassing guerilla warfare, these mountain tribes are among the finest marksmen in the world and how they procured their large supplies of modern rifles and ammunition has not yet been satisfactorily explained. The Anglo-Indian papers are naturally full of military dispatches and information regarding this war on the frontier. It is impossible to deal with voluminous reports, but we may refer to a few points of medical interest. Sir Bindon Blood's dispatches contain a reference to "the gallantry of Surgeon-Captain J. Fisher, Indian Medical Service, who made a most determined, though unsuccessful, attempt to take medical aid to the wounded of Captain Ryder's detachment through hot fire." The commissariat transport and medical arrangements were excellent.

The special correspondent of the *Times of India* with the 2nd Division of the Tirah expeditionary force, after adverting to the difficulties and dangers connected with the carrying of the wounded, remarks that the total losses of the 2nd Division for the month ending Nov. 18th have been 462 in killed and wounded alone, not counting sick—a very heavy casualty list; with the sick the numbers amount to 908. With regard to the requirements of a force in the field he mentions the excellence of nearly all articles supplied by the Commissariat Department. "The warm clothing supplied to the troops would indeed be hard to beat. Waterproof sheets, boots (the sewing might be a little better), socks, warm coats, Balaclava caps, Cardigan jackets, warm pyjamas, are one and all just as good as you could possibly hope or wish to get from anywhere and are good enough for anybody and are practically universally worn by officers and soldiers alike. The food-supply, too, is very good, the tinned beef and mutton excellent, as also is the bread, which is made almost immediately we arrive in camp daily. The chocolate, too, is good and most necessary. We notice, on the other hand, that according to the *Pioneer Mail* there was a great deal of grumbling among the medical officers in Tirah with regard to the quality of the stores of tinned milk and articles like arrowroot for the treatment of patients suffering from fever and dysentery. there were often, it is alleged, so bad as to be unfit for consumption.

Early in December last there were about 700 sick in the Peshawar Hospital, and these numbers will be augmented now that the expeditionary force is beginning to be concentrated at stations along the Khyber and Peshawar becomes the base of operations.

Brigadier-General Elles's despatch regarding the engagement near Shabkadr in August last has been received at the India Office and published in the gazette. Among the officers brought to favourable notice is Surgeon-Captain T. H. J. C. Goodwyn of the Army Medical Staff.

The sad death of Sir H. Havelock-Allan, V.C., M.P., who was killed in the Khyber Pass, removes a notable personage who had in his time shown himself a very brave and distinguished soldier. We regret also to hear that Major-General Yeatman-Biggs, C.B., has died from dysentery.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Lancashire County District.—Mr. Edward Sergeant, the medical officer of health of this district, is of opinion that in order to enforce the carrying out of the statutes relating to public health county councils should possess powers similar to those by which, under Section 299 of the Public Health Act, 1875, the Local Government Board are empowered to appoint some person to perform the neglected duty of a sanitary authority. The parish councils in Lancashire do not appear to be very energetic in matters touching the public health as during 1896 one complaint only was received by the county council, under the Local Government Act, 1874, as to unwholesome water supplies, and this in spite of the fact that there is much room for improvement in this particular. In referring to the question of infantile mortality Mr. Sergeant points out that although under Section 17 of the Factory and Workshop Act, 1891, the employment of a woman in a factory within four weeks of her delivery is prohibited there is no one whose duty it is to enforce the section. An instance of the resistant power of the small-pox virus is to be found in the contraction of the disease through the unpacking of a trunk belonging to a man who had died from small-pox on his way home from South Africa. Isolation hospital provision does not, it is regrettable to notice, make much headway in the county, and there are still no less than thirty-three districts without such provision. Two appeals were made to the Local Government Board during the year against the grouping of districts by the county council under the Isolation Hospitals Act, 1893, but in both cases the decision of the county council was upheld by the Board. As with hospital provision so with means of disinfection, more than half the districts in the county being without a proper apparatus. House-to-house inspection is not taken sufficient advantage of in many districts, and the subject of common lodging-houses seems well-nigh neglected. The smoke nuisance is not one upon which much improvement can be recorded and Mr. Sergeant observes that by allowing the emission of black smoke for more than ten minutes per hour the nuisance referred to is practically sanctioned; in Burnley the limits are twenty minutes per hour and in Lancaster two minutes. Mr. Sergeant advises that county councils be given concurrent power with district councils for carrying out Section 91 of the Public Health Act, 1895. There is much to be said for the proposal, as it is obvious that district councils are not sufficiently removed from local influences to deal adequately with this matter. In respect to sewerage considerable progress has been made during 1896, but in only a few instances has improvement been made in the water-supplies.

Newark Urban District.—A noticeable feature in this district is the marked fall in the incidence of enteric fever since the introduction of a new water-supply. The notifications of this disease during each year from 1890 to 1893 were 53, 125, 69, and 78. In 1893 the new water-supply was introduced and since that time the notifications have been 10, 8, and 7 for 1894, 1895, and 1896 respectively. There has, too, been a marked drop in the number of deaths attributed to tuberculous disease, and Mr. Charles Wills, the medical officer of health of the district, thinks this

reduction may possibly be due to the improved water-supply, more especially as a considerable amount of tuberculous material is conveyed by water. It would, however, have been well to have separated the intestinal cases from the pulmonary cases in order that a more correct idea of the intestinal disease might have been obtained. There is, too, the question of the vitality of the tubercle bacillus in water to be considered in this connexion.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 5954 births and 5256 deaths were registered during the week ending Jan. 1st. The annual rate of mortality in these towns which had been 20·6 and 17·7 per 1000 in the two preceding weeks rose again last week to 24·9. In London the rate was 27·6 per 1000, while it averaged 23·1 in the thirty-two provincial towns. The lowest death-rates in these towns were 14·1 in Birkenhead, 14·7 in West Ham, 15·5 in Gateshead, and 16·4 in Croydon; the highest rates were 27·6 in London and in Leeds, 30·6 in Blackburn, 32·7 in Halifax, and 37·4 in Norwich. The 5256 deaths in these towns included 647 which were referred to the principal zymotic diseases, against 562 and 480 in the two preceding weeks; of these, 289 resulted from measles, 150 from whooping-cough, 88 from diphtheria, 46 from "fever" (principally enteric), 37 from scarlet fever, and 37 from diarrhœa. No death from any of these diseases was registered in Plymouth or in Gateshead; in the other towns they caused the lowest death-rates in Portsmouth, Derby, and Newcastle-upon-Tyne, and the highest in London, Swansea, Birmingham, Blackburn, and Halifax. The greatest mortality from measles occurred in London, Croydon, Brighton, Swansea, Bristol, Blackburn, Burnley, and Halifax; from whooping-cough in Birmingham, Wolverhampton, Norwich, Salford, and Leeds; and from "fever" in Bolton. The mortality from scarlet fever showed no marked excess in any of the large towns. The 88 deaths from diphtheria included 53 in London, 6 in Cardiff, 4 in Birmingham, 4 in Liverpool, 4 in Leeds, and 3 in Manchester. No fatal case of small-pox was registered last week in any of the thirty-three large towns, and no small-pox cases were under treatment in any of the Metropolitan Asylum Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of last week was 3572, against 3806, 3733, and 3619 on the three preceding Saturdays; 273 new cases were admitted during the week, against 319, 260, and 222 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 457 and 353 in the two preceding weeks, rose again last week to 702, and were 132 above the corrected average. The causes of 92, or 1·7 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Cardiff, Oldham, Hull, Newcastle-upon-Tyne, and in eight other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Norwich, Liverpool, Burnley, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 20·3 and 18·6 per 1000 in the two preceding weeks, rose again to 24·1 during the week ending Jan. 1st, but was 0·8 per 1000 below the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 15·2 in Leith and 18·4 in Aberdeen, to 26·7 in Edinburgh and 31·3 in Greenock. The 717 deaths in these towns included 27 which were referred to whooping-cough, 18 to diarrhœa, 15 to measles, 8 to scarlet fever, 3 to diphtheria, and 2 to "fever." In all, 73 deaths resulted from these principal zymotic diseases, against 72 and 65 in the two preceding weeks. These 73 deaths were equal to an annual rate of 2·4 per 1000, which was 0·7 below the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of whooping-cough, which had been 29 and 26 in the two preceding weeks, were 27 last week, of which 16 occurred in Glasgow and 3 each in Dundee, Paisley, and Greenock. The 15 deaths referred to measles showed an increase of 4 upon the number in the preceding week, and included 13 in Glasgow and 2 in Greenock. The fatal cases of scarlet fever, which had declined from 12 to 9 in the three preceding weeks, further fell to 8 last week, of which 3 ocurred in Glasgow and 3 in Edinburgh. The 3 deaths from diphtheria included 2 which were recorded in Dundee, and the 2 fatal cases of "fever" were registered in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 138 and 149 in the two preceding weeks, further rose to 186 last week, and were 34 above the number in the corresponding period of last year. The causes of 44, or more than 6 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 28·5 and 21·8 per 1000 in the two preceding weeks, rose again to 33·3 during the week ending Jan. 1st. During the thirteen weeks of the quarter ending on Saturday last the death-rate in the city averaged 24·6 per 1000, the rate during the same period being 18·8 both in London and in Edinburgh. The 223 deaths registered in Dublin during the week under notice showed an increase of 77 upon the number in the preceding week, and included 13 which were referred to the principal zymotic diseases, against 19 and 13 in the two preceding weeks; of these, 6 resulted from "fever," 2 from diarrhœa, 2 from whooping-cough, 1 from measles, 1 from scarlet fever, and 1 from diarrhœa. These 13 deaths were equal to an annual rate of 1·9 per 1000, the zymotic death-rate during the same period being 3·8 in London and 2·0 in Edinburgh. The deaths referred to different forms of "fever" which had been 10 and 5 in the two preceding weeks rose again to 6 last week. The mortality from whooping-cough and from diphtheria also showed an increase upon that recorded in the preceding week, while the mortality from scarlet fever showed a further decline. The 223 deaths in Dublin last week included 34 of infants under one year of age and 61 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons exceeded those recorded in any recent week. Fourteen inquest cases and 10 deaths from violence were registered; and 74, or one third, of the deaths occurred in public institutions. The causes of 23, or more than 10 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

NAVAL MEDICAL SERVICE.

THE following appointments are announced:—Staff-Surgeons: J. Jenkins to the *Sirius*, and J. Lowney to the *Northampton*, additional for *Calliope*. Surgeons: T. Austen to Malta Hospital; J. Grant to the *Ramillies*; J. Barry to the *Pelorus*; S. Croneen to the *Impregnable*; and E. E. Kershaw to the *Sirius*. W. Sinclair, civil practitioner, to be Surgeon and Agent at Collierton, and W. E. Baylie, civil practitioner, to be Surgeon and Agent at Misner Haven.

ARMY MEDICAL STAFF.

Brigade-Surgeon-Lieutenant-Colonel Moore is appointed Embarking Medical Officer at Portsmouth. Surgeon-Captain Smithson assumes medical charge of the Royal Artillery, staff and details, Marlborough Lines, Aldershot. Surgeon-Lieutenant-Colonel Scott is appointed to the medical charge of troops at Yarmouth, and Surgeon-Major Day takes over medical charge of departments and families at Portsmouth. Brigade-Surgeon-Lieutenant-Colonel Edge joins at Woolwich for duty. Surgeon-Colonel Eaton has embarked for India.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant Arthur H. Vernon, 4th Volunteer Battalion the Hampshire Regiment, to be Surgeon-Lieutenant.

The under-mentioned officers having resigned their Volunteer appointments, cease to belong to the Army Medical Reserve of Officers:—Surgeon-Major W. T. Whitmore, F.R.C.S. Edin., and Surgeon-Lieutenant A. H. Marsh.

VOLUNTEER CORPS.

Artillery: 3rd Middlesex; Surgeon-Captain A. Lingard to

be Surgeon-Major. *Rifle:* 5th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon-Captain J. A. Gray to be Surgeon-Major. 1st (Hertfordshire) Volunteer Battalion the Bedfordshire Regiment: Surgeon-Captain Alexander James Boyd, M.D., resigns his commission and is appointed Captain. 1st Volunteer Battalion the Royal Scots Fusiliers: Thomas Hamilton, M.B., to be Surgeon-Lieutenant. 1st Volunteer Battalion the Cheshire Regiment: John Brown Yeoman, M.B., to be Surgeon-Lieutenant. 2nd Volunteer Battalion the Duke of Wellington's (West Riding Regiment): Surgeon-Captain J. Sutcliffe to be Surgeon-Major. 5th (Ardwick) Volunteer Battalion the Manchester Regiment: Surgeon-Captain Arthur Henry Smith resigns his commission and is appointed Captain. 5th (Irish) Volunteer Battalion the King's (Liverpool Regiment): Surgeon-Lieutenant J. J. O'Hagan to be Surgeon-Captain.

VOLUNTEER INFANTRY BRIGADE.

Sussex Brigade: Surgeon-Major W. M. Vores, M.B., 2nd Volunteer Battalion the Royal Sussex Regiment, to be Brigade-Surgeon-Lieutenant-Colonel on being appointed Senior Medical Officer to the Brigade.

VOLUNTEER MEDICAL STAFF CORPS.

The London Companies: Surgeon-Lieutenant-Colonel-Commandant A. T. Norton, C.B., resigns his commission; also is permitted to retain his rank and to continue to wear the uniform of the corps on his retirement.

DEATHS IN THE SERVICES.

Deputy Inspector-General of Hospitals J. Kellie, late Deputy Inspector-General of Hospitals, Madras Army, on Dec. 16th, 1897, at Ealing, in his ninety-second year.

Deputy Surgeon-General John Houston, Indian Medical Service (retired), on Christmas Day at Edinburgh, aged sixty-five years. He received his medical education at Edinburgh and Glasgow, becoming M.D. of Glasgow University and L.R.C.S. Edin. He entered the Medical Service of the Madras Government in August, 1855, served in Mysore, and was Chemical Examiner and Superintendent of the Gaol. He became Surgeon-Major in 1867, and subsequently served as Durbar Physician to the Maharajah of Mysore, as Surgeon to the Mysore Commission, as officiating Residency Surgeon, and as Surgeon to the Mysore Government. He reached the rank of Brigade-Surgeon in 1881, and retired in 1886. The deceased officer leaves a widow, two sons, and two daughters to mourn their loss besides a large number of friends.

Inspector-General Thomas Russel Pickthorn, R.N. (retired), at Rockbeare, Emsworth, on Dec. 31st, 1897, aged eighty years. He entered the Navy as Surgeon in 1842, was promoted to Staff-Surgeon in 1851, and served in the *Spartan* in China from 1852 to 1855. He was promoted to be Fleet-Surgeon in 1866, Deputy-Inspector-General of Hospitals in 1870, and Inspector-General of Hospitals in July, 1878.

THE SOUDAN CAMPAIGN.

There has been and still is much excitement in Egypt in regard to the renewal of military operations in the Soudan. The movement of troops naturally led people to believe that an advance on Khartoum was to be made at once. These military movements may possibly, however, have been rather of a defensive than an offensive character and have been brought about by the intelligence received of a threatened advance of the Dervishes northwards. The present is an opportune time for such an attempt on their part, for the railway to Berber has not been completed, the Nile is low, and the Egyptian army in the field has not as yet received any British reinforcement. Some battalions of British infantry are leaving for Wady Halfa for frontier work and the Cameronian Highlanders will soon follow. Their places will be supplied by troops from the Mediterranean and by battalions on their way home from India. The Sirdar (Sir H. Kitchener) is still at Wady Halfa. Among the officers recently ordered up the Nile are three army surgeons. Before any forward movement takes place in the direction of Khartoum the Egyptian army must be materially strengthened by a British contingent and the number of army surgeons will have to be materially increased. The preparations that are being made and the activity that is being manifested look as if a speedy advance were anticipated.

THE INDIAN FRONTIER CAMPAIGN.

The latest intelligence is to the effect that there has been sharp fighting in the Khyber Pass and in the direction of Lundi Kotal. The Bunerwal tribe having refused to comply with the terms offered them will be at once proceeded against and more fighting is expected, but the winter and snowfall will soon cause a suspension of all military operations. The cold is already very severe. General Sir William Lockhart returns to England on three months' leave, and what with the presentation of his reports to the Indian Government and the interviews which he will no doubt have with the India Office in this country the future frontier policy will probably be soon considered and definitely settled. The troops are fairly healthy and the wounded are, speaking generally, doing well. The prevailing forms of sickness have been fevers (chiefly malarial), dysentery, and respiratory diseases. The tribes in the Kurram are suffering much from the cold owing to the destruction of their dwellings and the valley is quiet; but the Afridis, on the other hand, have shown no disposition to send in jirgahs to make terms; on the contrary, they are actively pursuing their usual tactics in attacking our columns on every opportunity favourable to themselves. Whether they will endeavour to make terms before the spring remains to be seen.

THE GALLANTRY OF MEDICAL OFFICERS.

The gallantry of Captain D. C. F. Macintyre and Surgeon-Captain W. Selby, 1st Battalion 2nd Gurkhas, has, we are glad to say, been specially brought to notice with a view to these officers' claims for the Victoria Cross being considered. The gallant and devoted services of Surgeon-Captain T. H. I. C. Goodwyn, A.M.S., on the occasion of the engagement on Aug. 9th last with the Mohmands and other tribes have been specially referred to by Brigadier-General Elles in his despatches, and it is hoped that this medical officer may also have a Victoria Cross conferred upon him.

Surgeon-Major-General A. A. Gore, A.M.S., Principal Medical Officer to Her Majesty's Forces in India, has been awarded a distinguished service pension of £100 a year. On leaving Simla in December he inspected the base general hospitals at Peshawur and Pindi, the 3rd Battalion Rifle Brigade at Umballa, the 2nd Battalion Royal Irish at Pindi, and the 1st Battalion Somersetshire Light Infantry. The headquarter offices for 1898 will be in Fort William, Calcutta.

The *Times* states that the Government of India propose to engage three sanitary officers to carry out bacteriological investigations in cases of enteric fever among British troops.

Correspondence.

"Audi alteram partem."

"THE HOSPITALS, THE PROFESSION, AND THE PUBLIC."

To the Editors of THE LANCET.

SIRS,—Every one of the millions who now read the newspapers must be aware of Sir Henry Burdett's views on "hospital abuse" and his desire for the "reforms" he advocates. Among the out-patients at every hospital are persons who might be sent away without help as slight cases to be dealt with at the dispensary, but here and there comes one who happens to be sickening for serious illness—perhaps pneumonia or typhoid fever—and who under our present system would be at once taken in, sent to bed, and properly cared for, while under some organisations he might be sent away as an "improper object." Let anyone imagine himself poor, ill, and in pain, after having walked miles and waited long for his turn and then to be told he may go to—the dispensary. Would the "undeserving" be the only ones "shut out" by the wonderful net by which Sir Henry Burdett proposes to secure the portals of every hospital? Of late the public and the profession have been told much about the few who are supposed to abuse hospitals—very little about those on the other side. Sir Henry Burdett and his friends seem hardly to believe in the existence of clean-faced misery and misfortune or that people once well off may become wretched, ill, and get into a state verging on despair who need help *at once* and deserve it without being first organised. Has it never occurred to him that we save hundreds of people every year in our public hospitals to the advantage of the public and to the credit of our country—

people who would have died before organisation could have reached them?

Why should not the present committees and their friends, the staffs and other officers of our hospitals be still trusted by the public to administer the institutions built and paid for by them, their friends, and their predecessors?

Nothing is easier, especially in these days of difficulty, than to set one branch of the profession against another. With few—very few—exceptions, professional men have to work very hard whether their services are remunerated or not.

I am thankful that all the confident and far-seeing organisers in the world cannot prevent us from giving our professional help where we think it right to do so, and especially in cases in which our would-be helpers would be powerless. They do not know the facts as we do and do not understand our position with regard to the sick and to one another. Having little knowledge or experience as to things medical they set to work as the only persons able to help us, the poor, and the public out of our difficulties. They essay to prevent us from being cruelly imposed upon by the unscrupulous sick who ought to pay for medical advice but who do not. Out of pure kindness, and in order to safeguard all interests, they undertake to improve our administration, to spend our money more economically and wisely than we can, to manage committees and staffs, patients and nurses far better than they can manage themselves, and claim to be the only persons able to divide big funds with justice to those who are to participate and for whom the funds were subscribed. Everyone who wants to assist the poor is to send them his subscription and they will take care it is distributed only in their own particular authorised way.

I am, Sirs, your obedient servant,

LIONEL S. BEALE.

HYDROCYANIC ACID AS AN ANTIDOTE IN CHLOROFORM POISONING.

To the Editors of THE LANCET.

SIRS,—Having recently[1] pointed out the similarity of the symptoms in certain chloroform fatalities with those exhibited in death from sudden hæmorrhage and in cases of poisoning by hydrocyanic acid, I am naturally surprised to find hydrocyanic acid suggested as an antidote in chloroform poisoning by Professor Hobday in THE LANCET of Jan. 1st, 1898, p. 27. Having had no experience in the administration of anæsthetics to animals I do not in any way question the utility of the treatment adopted in the cases reported, but considering the accepted views as to the physiological action of hydrocyanic acid it is difficult to understand the *rationale* of its beneficial effects in cases of chloroform accidents. Hydrocyanic acid is referred to as a *respiratory stimulant* by Professor Hobday, and is presumably given as such, but surely it is the reverse of a respiratory stimulant. In works on therapeutics—e.g., Dr. Lauder Brunton's—it is described as one of "the most powerful and rapid poisons," which has "a special paralysing effect on the respiratory centre."

It is true that in poisonous doses rapid respiration is one of the symptoms, but this is merely secondary to the failure of the circulation and not the result of stimulation of the respiratory centre by the drug. To quote the same work—the symptoms of hydrocyanic acid poisoning are "giddiness, uncertain gait, a few slow breaths, and then rapid respiration and irregular action of the heart ..... succeeded by violent convulsions tonic and clonic ..... complete loss of sensibility, paralysis of the voluntary muscles, almost imperceptible pulse, slow and weak respiration, the expiratory movement predominating, and death."

Dr. Brunton notes the similarity between these symptoms and those of carbonic acid poisoning, and considers them due to "rapid asphyxia," apparently from "paralysis of the respiration." There is certainly asphyxia of the tissues, but not in the ordinary sense of the term and it is not due to paralysis of the respiration. From the same account we gather that there is also "great dilatation of the peripheral vessels," and excessive depression of the arterial pressure. It seems evident from this that in hydrocyanic acid poisoning by a medium dose there is a paralysis of the circulation and consequent anæmia of the cerebral centres and general blood starvation of the tissues which causes the rapid respirations and convulsions. On these grounds it is difficult to see how the drug can be of use in ordinary chloroform accidents. It would be a help if Professor Hobday could give an account of the effects of the dose he recommends on a healthy animal.

I remain, Sirs, yours truly,

ALEXANDER WILSON,

Administrator of Anæsthetics, Royal Infirmary, Manchester, &c.

Jan. 3rd, 1898.

[1] THE LANCET, Sept. 11th, 1897.

"TYPHOID FEVER IN BELFAST."

To the Editors of THE LANCET.

SIRS,—Dr. J. A. Lindsay complains in THE LANCET of Jan. 1st that my reports on the above subject may by their exaggerations tend to retard rather than to advance the cause of sanitary reform in Belfast. Yet on reading what Dr. Lindsay has to say concerning the state of affairs in that town the chief difference between his description and mine seems to be one of form rather than of fact. To those however who have not read my reports an impression might be conveyed by Dr. Lindsay's opening remarks that I had failed to describe the sanitary improvements which have been taken in hand and did not allude to the constant remonstrances made by the superintendent medical officer of health, Dr. Whitaker. Anyone who has read my report will, on the contrary, know that I frequently quoted the very excellent criticisms made by Dr. Whitaker and described at great length the main drainage scheme, the old waterworks, and the proposed new supply.

Dr. Lindsay then somewhat confuses the issue by protesting that statistics extending over only the first nine months of the year 1897 should not be taken as a criterion of the health of the town and he proceeds to give the number of deaths from typhoid fever which have occurred during the previous five years. But in my report published on Nov. 27th, 1897, I gave exactly the same figures, the only difference being that Dr. Lindsay goes back to the year 1892 and I did not go farther back than the year 1894. I never sought to prove Belfast suffered more from typhoid fever as an endemic disease than all the other great towns of Europe, but simply quoted the statistics published by the chief medical officer of the Gresham Life Assurance Company, showing that during the year 1897 Belfast had acquired an unenviable predominance in this respect. These figures were very startling as indicating the widespread nature of the present epidemic which occasioned during nine months deaths from typhoid fever in Belfast equal to the proportion of 965 per 1,000,000 of the population, whereas in the worst town in Europe, Namur, the figure is only 434, and in London it does not amount to more than 77. This surely had a direct bearing, not on the general health of Belfast as taken on the average of several years, but on the present epidemic. Dr. Lindsay then proceeds to show that the average death-rate from typhoid fever is higher in some parts of England and in many parts of the Continent. This I most freely admit, as I also recognise that two blacks do not make one white. No one can have read THE LANCET for some years without having noticed the extremely severe criticisms of the insanitary condition of continental towns published more especially during the recent cholera epidemic.

The main difference, therefore, remains one of form rather than of substance and I am quite willing to bow to Dr. Lindsay's superior tact and knowledge with regard to the style of language that is likely to produce the most favourable impression on the members of the Ulster Medical Society. Writing for a medical paper I ought doubtless to have adopted that courtly persuasiveness and soothing suavity of tone for which the profession is so eminently distinguished. If I have been remiss towards the medical men who at Belfast treated me with uniform hospitality, courtesy, and kindness I tender them my humblest apologies. But I do more, I credit their higher humanitarian sentiments with the power of freely forgiving me when I confess that in writing those reports I thought very little about them but a great deal about the suffering population that is under their care. The medical profession may give very efficient help towards the attainment of the necessary sanitary reforms; but, after all, theirs is only a work of propaganda. Action must be taken by the electors, and the electorate of such a town as Belfast is not likely to arise

in response to a mild criticism uttered in dulcet tones. The influence of THE LANCET, especially on such subjects, extends beyond the ranks of the medical profession. It seemed to me necessary to point out to the electors of Belfast that though the town had been saddled with heavy burdens for sanitary improvements comparatively little had been done to ameliorate the condition of property in which some among the elect were interested. I do not believe that even abroad it would be easy to find a town where there are 20,000 privies that have to be emptied by carrying the filth through the dwelling rooms. Certainly £300,000 have been spent on the main drainage of Belfast, but I take it that a smaller sum would have sufficed to enforce the building of back passages to these houses. On the Continent, also, there are not the good sanitary laws and the wealth to carry them out which we possess in Great Britain. Why has the law been broken in Belfast and houses allowed to be built on ground made up with the fæcal matter and garbage taken out of privies and ashpits? Certainly £610 000 are to be spent to obtain an ideal water-supply, but in the meanwhile a solution of decomposed rats is served as drinking water to the customers of a restaurant situated in a central part of the town. The ratepayers are to be taxed to the extent of £610,000 for a new water-supply; but how difficult it was to override the individual interests of master plumbers so as to obtain a by-law enforcing the use of first-class water-fittings. The community at large will probably be encumbered with a debt of more than one million sterling for sanitary improvements, but there will still be a high death-rate if the owners of insanitary property are not forced to put their houses in order. Domestic sanitation is more needed than public hygiene. Therefore if we sincerely desire to save human life in Belfast it is necessary to speak to the electors in the forcible language they best understand rather than content ourselves with polite protests. King Hildebrand may if he chooses hang his victims "most politely." For my part I was certainly more anxious to denounce abuses than to plead attenuating circumstances, particularly as such attenuating circumstances, such sanitary measures as have been adopted, have a tendency to place taxes upon people who are innocent instead of imposing burdens on owners of jerry built houses who are guilty. Perhaps as a matter of tactics I was mistaken, but anyone who has visited the jerry-built houses of Belfast will understand my indignation and may even join with me in invoking the united voice of civilisation against the 20,000 privies that have to be emptied through rooms inhabited by citizens of the wealthy commercial capital of Ireland.

I am, Sirs, yours faithfully,

Jan. 3rd, 1898. YOUR SPECIAL COMMISSIONER.

THE MEDICAL ACTS.

To the Editors of THE LANCET.

SIRS,—By your courtesy about eighteen months ago I drew the attention of the profession to the inferior general powers it possessed, as compared with the legal profession, for the suppression of quacks and unqualified practitioners. May I again refer shortly to this subject? In the past session of Parliament a Bill was passed which comes into force to-day as an Act entitled "The Land Transfer Act," and it is interesting to note that besides the general powers which the legal profession already possess for the punishment of unqualified practitioners this Act contains a clause providing "that any person not being a member of the legal profession drawing *for pay* instruments of transfer shall incur a penalty of £50." Again, the third part of the Bill originally provided for *compulsory* registration of both and yet the members of the legal profession induced the Government to modify their original proposals and now it is enacted that the adoption of these clauses shall be *optional*.

How is it that it never occurs to the members of the local medical societies and associations to follow the example of their neighbours in appointing deputations to interview the individual members of, and candidates for, Parliament on proposed legislation which materially affects their status and interests? The medical profession should be able to enforce its views upon Parliamentary candidates with more show of power than the legal profession, for surely medical men have more opportunities for influencing the votes of their patients on a public question like the suppression of quacks than the lawyers have in the voting of their clients; but by the persistency of their intervention the lawyers always appear to gain all that is worth fighting for. In almost every constituency at the last election the legal profession obtained the views of the candidates on the above-named enactment and worked and voted accordingly. Why cannot the medical profession arise and do likewise on its own behalf? Lastly, I would point out again that Section 40 of the present Medical Act provides, not as it ought to do, that any person not being a registered qualified medical man who for pay treats patients, &c., but "any person who shall wilfully and *falsely* take or use the name or title of a physician, doctor, &c., implying that he is registered under the Act," so that one is compelled to admit that the Act protects a mere title and not the person who practises the profession—in other words (as it is a legal maxim that penal Acts are construed strictly), in any action against an unqualified practitioner it must be proved that the defendant exercised fraud in obtaining his patients. A court of law will always hesitate to convict for fraud unless such is proved to the hilt. I am, Sirs, yours faithfully.

Leeds, Jan. 1st, 1898. J. H. WIGHAM.

WOODFORD URBAN DISTRICT COUNCIL.

To the Editors of THE LANCET.

SIRS,—It was stated by a member of the above council a short time since that diphtheria was not now regarded as infectious, and he further said in support of this statement that that disease was received and treated in the general wards of hospitals. I demurred to these statements but he assured me that he had lately seen more than one case in the surgical wards of a hospital where the cases had been admitted in order that tracheotomy might be performed. I must confess that this is rather startling news to me, and I therefore appeal to you, Sirs, for an opinion as to how this matter stands Why do we go to the great expense of providing special hospitals for the treatment of this disease if it can be safely treated in the wards of a general hospital? I am, Sirs, yours truly.

Woodford-green, Dec. 28th, 1897. WILLIAM G. GROVES.

*** We were not aware that cases of tracheotomy for diphtheria were ever treated in general surgical wards. Surely the general hospitals could not provide accommodation for more than a mere fraction of the number of cases of diphtheria.—ED. L.

"THE UNQUALIFIED ASSISTANT AND THE GENERAL MEDICAL COUNCIL."

To the Editors of THE LANCET.

SIRS,—In the observations I am about to make on the above subject I must premise that I am referring solely to that class of unqualified assistants who are employed by their principals in a most limited capacity and under the strictest supervision and control, by far the major portion of whose duties being unconnected with the medical portion of their practice. These assistants therefore help their principals only in a small degree in their medical work, but this assistance is a great boon to them when there is pressure of work and when the principal is not in the way or otherwise engaged. These assistants do all the dispensing and book-keeping and attend to a number of minor matters which the qualified assistant would consider beneath his notice. By prohibiting this small assistance, which the principal cannot do well without, the General Medical Council will compel the principal to dismiss his assistant who discharges so ably the non-medical portions of his duties and to take a qualified man who has no aptitude as a rule for such work and who probably would consider some portions of it *infra dig*. The principal will be thus placed in a predicament, for he cannot keep a qualified assistant and a dispenser, &c., also. Undoubtedly this notice is most sweeping and drastic and will produce widespread havoc among the assistants and fetter the principals financially and otherwise. I should like to be informed what *rôle* is to be played by the dispenser and surgery attendant. Is either the one or the other to be allowed to attend to any injury, to give any simple medicine for a slight ailment in the surgery, or to attend an ordinary case of midwifery? If not they are in a worse position than an ambulance man, who can go as first aid to the injured, or the prescribing chemist, or the midwife. If they do attend they will, I suppose, be in fear of being

confronted with the spectre of "infamous conduct" against their principal and will therefore avoid the afflicted as they would a leper or the arch-tempter himself. This notice will produce no unmixed blessing, for such will be its practical outcome and it will lead to confusion and chaos. In this notice the objects, which are no doubt laudable, are two-fold—viz., (1) the prevention of unqualified assistants from being used fraudulently and to the danger of the public; and (2) the substitution of the qualified for the unqualified assistant. As to the first point I have never found that the restricted and supervised use of the assistant has been fraught with danger or fraud, but the very contrary. As to the second point it will be gathered from the preceding remarks that it will not be an easy matter to find a qualified man to take the place of an unqualified one in all his various duties. Those principals, however, who keep unqualified assistants to do a large amount of their practice and also a dispenser will have little difficulty in conforming to this notice and will not be put to much inconvenience, as the substitution can easily be effected and their position then rendered less vulnerable, whereas the other principals by this notice will be placed on the horns of a dilemma. Have the Council calculated and measured the far-reaching effects of this great innovation and the wholesale and indiscriminate annihilation of these assistants and permanent injury to the principals without corresponding benefit to the public?

It is all very well for the Council to pose as purists in this matter and to cleanse what they may think is an Augean stable regardless of the consequences to the principals, assistants, and the public; but perhaps the day will come when in their zeal for reform they will find they have crippled the principals and wronged those useful, harmless, and fraudless assistants of whom I speak, many of them being gentlemen by birth and education, and who will now be cast adrift and all similar appointments closed to them. Surely to have hurled such fulminations at the heads of principals and assistants the Council must have had in their minds a far different class of assistants from those I allude to, and hence the great necessity for discrimination so that no injustice may be done. It certainly seems a great hardship that these assistants should be stigmatised as fraudulent and dangerous to the community and be cast adrift because other principals have used them improperly so as to bring themselves within the pale of "infamous conduct" If the Council had decided on a *via media* and followed the motto, *in medio tutissimus ibis*, they would have destroyed the abuses which everyone would welcome and retained the uses of the unqualified assistant, but by this action they have placed both principal and assistant in a regular quandary and upset all former arrangements. Moreover, to make matters worse, the Council refused to support the humane and reasonable proposition of Mr. Teale to postpone the operation of this notice till Jan. 1st, 1900. I unhesitatingly assert that a greater blow has not been struck at principal and assistant for many a year and in these days assuredly the profession requires assistance not blows, friendly not hostile enactments. In conclusion, I venture to think that had the Council found a *via media* so as to have spared this class of assistants they would have given general satisfaction to the profession and have earned the thanks and gratitude of those principals who keep such assistants instead of causing great irritation and calling forth righteous indignation and almost anathemas.

I am, Sirs, yours faithfully,

Dec. 23rd, 1897. JUSTITIA.

To the Editors of THE LANCET.

SIRS,—In the recent notice in reference to unqualified assistants passed by the General Medical Council, the word "midwife" was inserted at the last moment, without defining at the same time whether it meant male or female, or both. Of course, if it was the former a principal could still employ an unqualified man as dispenser and midwife only, which would be a very proper arrangement. There are hundreds, I might say thousands, of doctors in the United Kingdom who through advancing age or delicate health are unable to do night work unless almost at the peril of their lives, but who are well able to do day work. How about these men? They are not able very often to afford £90 or £100 a year for a qualified assistant, and yet they must take midwifery cases so as to keep their practices together. The result of the General Medical Council's notice if they meant female only when they added "midwife" will be to throw more power, and eventually registration, into the hands of the so-called certified nurses, trained midwives, &c. I hope this matter will be cleared up properly at the next meeting of the Council.

I am, Sirs, yours faithfully,

Jan. 1st, 1898. J. C. W.

*** It seems to us that if a practitioner is incapacitated for night work he should either give it up or keep a qualified assistant. Even in the latter case the principal might very often have to attend as well; but it is not logical to say that because a man is unable to do his own work he should therefore be allowed to hand it over to an unqualified person.—ED. L.

To the Editors of THE LANCET.

SIRS,—As one of the sufferers by the recent action of the General Medical Council permit me to express a hope that at the next meeting of that body some member may have the courage to intercede for the poor unqualified assistant. I am fifty-six years of age, having entered the medical profession as a pupil-apprentice with Dr. —— in 1863. I subsequently studied under —— and qualified in obstetrics From 1870 up to the present time I have served satisfactorily many well-known practitioners in London and the provinces. It is to my mind cruelly unjust to be told that after more than thirty years' practical experience I am incompetent because want of funds prevented my obtaining the necessary *sciant omnes*. In conclusion permit me to thank "An Old G. P." for his able appeal on our behalf.

I am, Sirs, yours faithfully,

Jan. 2nd, 1898. AN OLD ACCOUCHEUR.

To the Editors of THE LANCET.

SIRS,—Now that the General Medical Council has signed the death-warrant of the unqualified assistant and placed him in the condemned cell I hope that they will allow mercy to step in and give all possible consolations to the dying man. The measure which was hailed with joy by so many members of our profession may not be, after all, an unmixed blessing. In his proper sphere the unqualified assistant is a very useful man to a great number of general practitioners. He does work which subordinates of non-medical training could not be entrusted to do and which qualified assistants might resent as *infra dignitate*, the nature of which work is a matter of detail and is foreign to the object of my letter.

It is only in keeping with the general liberal-mindedness of the medical profession that they should steer clear of anything in the nature of high-handedness or apparent injustice and I am sure it is only necessary to draw the General Medical Council's attention to the fact that some injustice may have been inflicted by the sweeping and revolutionary by-law in question. Men who have spent their whole careers as assistants are totally unfit for any other employment. Many of these have undergone their full curricula of medical study but did not get qualified. They now have the poor prospect of becoming sandwich-men, betting-men's touts, or perhaps worse!

A judicious compromise will avert this unpleasant outlook. By the Apothecaries Act, 1815, every pill-moulder and salts' vendor in the country became an apothecary (and was dubbed "doctor") by Act of Parliament. Again, in 1878 the Dentists Act epilated half the German barbers of the east-end of London from their saloons and huddled them together with nearly every chemists' assistant in the United Kingdom into the earlier editions of the Dentists Register. Why, then, should not the unqualified assistants who are in the main better educated than the two former classes get a like chance? A register of existing *bonâ-fide* assistants could easily be prepared, necessary restrictions can be imposed, and a great deal, if not all, of the suffering may be relieved while the qualified principals will not run the risk of being guilty in a professional sense of a newly created crime. There is an agitation going on to get a Midwives Register, Nurses', &c., why should not unqualified men be registered as well as unqualified women? What is sauce for the goose ought to be sauce for the gander.

I am, Sirs, yours faithfully,

Jan. 4th, 1898. X. P.

SCIENTIFIC WORK IN INDIA.

To the Editors of THE LANCET.

SIRS,—The retirement some months since of the Foreign Plague Missions has practically left India without a scientific body of men engaged in the investigation of the causes of bubonic plague. That the missions visiting Bombay last cold weather were all from foreign countries and there was none to represent England will always be a source of regret to Englishmen in England and India. There is, however, sufficient time to remedy this omission. Unfortunately plague is raging in some parts of India, especially in Poona about 120 miles from Bombay, with almost unprecedented virulence, and though active measures are being adopted by the laymen who have chief charge of such arrangements scientific investigation is conspicuous by its absence. With the exception of Professor Haffkine no well-known specialist appears to be engaged in it. The time would appear to have more than arrived when a scientific mission should be sent from England to investigate the causes of the origin and spread of bubonic plague, and should Government not do so I would suggest that there could hardly be a more worthy object on which the rich corporate medical bodies of the United Kingdom could expend a portion of their wealth than in sending out a mission to investigate a subject so fraught with scientific interest and momentous issues to humanity.

I am, Sirs, yours faithfully,

Jan. 3rd, 1898. N.

NOTES FROM INDIA.

(FROM A SPECIAL CORRESPONDENT.)

THE PLAGUE.

THE plague still rages in the Bombay Presidency. A recrudescence of the disease seems to be developing in Bombay City, each week showing a higher mortality from the plague. In Surat and Sholapur it still continues rife, while at Poona it is raging with great ferocity. In the latter city about 400 deaths from the disease are recorded each week, the mortality from the commencement of the outbreak being considerably over 4000. The disease seems to attack women more readily than men and children are very largely victims. At present all the efforts that have been made do not seem to have effected much progress against the epidemics. The comforts of the sick are, however, now well looked after in the various hospitals and great efforts are made in each city to discover the sick and separate them from the healthy. The Poona General Plague Hospital is admirably equipped and well managed but the condition of the city is wretched in the extreme. The mortality in the hospital is between 60 and 70 per cent., but the death-rate from plague in the whole district reaches over 80 per cent. In other places this terrible death-rate equally reigns. No specific has been discovered for the disease, the general plan of treatment being merely a stimulant one. Digitalis, strychnine, arsenic, quinine, and ammonia have each their supporters, but it is difficult to say that in any case they have proved of unmistakable value. The open-air treatment of the hospitals together with every attention and nursing does seem, however, to lower the mortality from that of the whole district. Very large numbers who survive the onset succumb to complications or to one or more of the numerous sequelæ. A few drag on through a long convalescence.

THE PARSEE LYING-IN HOSPITAL AT BOMBAY.

This institution, the only one of its kind in India, illustrates very admirably the advantages of the spread of scientific knowledge and the possibilities of overcoming some of the prejudices and superstitions of a religious caste which have hitherto acted so injuriously. Supported entirely by voluntary contributions and with a staff of Parsee medical men who have been educated up to European methods the results achieved here probably compare favourably with any other lying-in hospital in the world. The number of patients is limited as there are only about forty beds and the Parsee population is comparatively small. The building is constructed of stone, and the very lofty wards, ample cubic space and cemented floors, together with cross ventilation by large open doors and windows, afford opportunities of air change equal almost to life out of doors, and place the patients under most favourable conditions. The ordinary routine is somewhat as follows. The patient in labour is delivered in the operating room. The hands are dipped in perchloride of mercury solution (1 in 1000) and used while wet for examination. Labour on the average probably lasts as long as with Europeans but is said to be easier and not to require manual or instrumental assistance so frequently. If the afterbirth be not expelled from the uterus in about twenty minutes expression is adopted and if this be not successful in about half an hour longer withdrawal by the hand is resorted to. Ergot is given immediately after labour and 5 gr. doses of quinine night and morning for two or three days together with vaginal injections of perchloride solution (1 in 3600) twice a day constitute a routine practice.

The patient remains in the operating room a few nours and is then placed in a ward on the first floor for about ten days, after which she is moved to a higher floor and remains in the hospital until forty days have elapsed since her delivery. The Parsee custom at home, whether among rich or poor, is to be delivered and remain on the ground floor for forty days and the husband not to be even seen until this period has elapsed. The object of this seclusion is that sexual intercourse should not be indulged in until this time has passed by—a custom which might be followed by white people all over the world with considerable advantage. The patient does not necessarily remain in bed all this time, but she is resting the greater part of it. This of itself must be conducive to more perfect recovery. Another custom consists in destroying all the clothes and bedding brought by the patient or used by her during the time she is in the hospital. She leaves therefore with an entirely fresh supply. In the case of the poor this is of course provided by charity, but the custom must obviously be a distinctly salutary one.

The children are hung in a cotton hammock suspended from a metal bar between two uprights. This arrangement is generally placed near the foot of the bed. The child can be easily rocked and the cotton hammock is cheaply and readily replaced. Among the Parsee women there is a general objection to all operative and instrumental interference. The custom therefore is to wait so long as the pulse continues good and the temperature remains normal. As a consequence the employment of forceps only occurs once in about twenty-five cases. The breaking up of the wards by partitions into spaces for four patients is adopted out of consideration for the feelings of other patients.

Out of the last published series of 800 cases there were 765 vertex presentations, 25 breech, 7 face, 2 foot, 2 shoulder, 4 other parts, 1 placenta and breech, and 1 placenta prævia. Of deliveries 762 are classed as natural and 38 as instrumental; of the latter there were—forceps, 31 cases; turning, 4; craniotomies, 2; and symphysiotomy, 1. Of the forceps cases half were in primiparæ. Pelvic deformity is rare, the only diameter found narrow being the antero-posterior due to the promontory of the sacrum projecting forward. The measurements of the pelvis are less than among Europeans, but the fœtal diameters are also smaller. The stillbirths were 4 per cent. while the average in the Parsee community is 7 per cent. The infantile mortality in the hospital is 3 per cent.; in the community outside 6 per cent. The maternal mortality recorded 1 case of cardiac and renal disease, 3 cases of septicæmia (all attended by one nurse), 1 case of small-pox, 1 of abdominal tumour, 1 of phthisis (with hæmoptysis), 1 of continued fever dying on the second day from admission. It will be seen, therefore, that with the exception of the three deaths from septicæmia the fatal cases were probably inevitable. Laceration of the perineum occurred in 6½ per cent. of the total number of cases—26 5 per cent. of the primiparæ. Severe post-partum hæmorrhage occurred in four cases (1 in 200). Out of the 800 deliveries there were seven twin births. From the above satisfactory results it is to be hoped that the Hindus and Mohammedans will follow the lead of the Parsees and build their own lying-in hospitals.

Not the least advantage is the educational effect that the practice of the institution gives to the whole Parsee female community so that the unhealthy surroundings on the ground floor wholly unventilated and subject to foul emanations which have previously been the delivery-room in every private house are now changed for much more sanitary quarters. This together with many other improvements in their customs has followed the establishment of this admirably conducted institution.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Sir John Holder.

SIR JOHN HOLDER, to whom the New Year's honours have brought a baronetcy, is the chairman of the committee of the General Hospital. From the inception of the scheme for building the new hospital Sir John Holder has taken the most active interest in furthering its progress. On all occasions liberal and bountiful, he has not only largely augmented the building fund but by personal and keen supervision has enlisted the enthusiasm of those associated with him. The addition of this title to his name has met with universal approbation, coupled with the hope that he will still continue to exercise the influence that has so largely contributed to the success of the present hospital.

Deaths under Chloroform.

Two instances of deaths under chloroform have occurred lately. One at the General Hospital was in the case of a child, five years old, who was undergoing an operation for excision of the tonsils and removal of adenoid growths. The jury in this instance expressed the opinion that an interval of time—say a week—should elapse between the two stages of the operation. In this opinion they evidently failed to recognise the professional aspects of the case and in their knowledge of the condition for which the operation was performed. The second case was at the Queen's Hospital the patient being a man, aged forty years, who had an abscess of the kidney. At the post-mortem examination it was shown that both kidneys were extensively diseased and that the muscular walls of the heart were thin and deficient in tone. There were no previous indications of heart affection.

Christmas Festivities.

As usual the time-honoured customs of Christmas have been upheld in the different hospitals. Where admissible there have been entertainments for the patients given by the residents and their friends; Christmas-trees for the little ones, and an abundance of good cheer for those who have been able to partake of it. The stream of charitable contributions has this year been ample to supply all these wants, and much pleasure has been experienced by the inmates of the various institutions. The cause of charity appears to be promoted by association with the sufferings of others, and hearts are expanded by benevolent deeds which appeal to the sight and senses in addition to the understanding.

Deaf and Dumb Union.

On the first day of the year an interesting and somewhat singular union was held at which over 150 deaf mutes were present. Over 400 such are living in the town and efforts have been made to establish a permanent home in the form of an institute. Other large cities have buildings of this kind, where instruction and social enjoyment help to render the lives of this class of sufferers more happy. It is to be hoped that the efforts will be successful and that brightness will be added to a very deserving number of people who are incapable of the pleasures others enjoy.

Smothering of Infants.

On Dec. 30th the city coroner held inquests on four infants who had been overlain in bed. On the previous day inquests took place upon the bodies of three children who had died from a similar cause. Thus seven children were shown in two days to have lost their lives from this apparently preventable cause. The holiday season is responsible in a great measure for this wholesale death-rate. Common humanity ought to be more influential than Acts of Parliament in the prevention of this mode of destruction of infant life. The habits of people living under such circumstances as conduce to the occurrence of these lamentable accidents demand closer attention and stricter regulations than those obtained by legislation, though even this seems to be needed.

Jan. 4th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester Literary and Philosophical Society: The Mechanical Equivalent of Heat.

EVEN the non-scientific of the Manchester people are aware that the name of Dalton is one to be proud of, for it is perpetuated by an important thoroughfare—John Dalton-street. So also that Joule is a name shedding lustre on this work-a-day place and some are glad to know that his determination of the mechanical equivalent of heat has been confirmed by an inquiry conducted by Professor Osborne Reynolds and Mr. Moorby in the Owens College Engineering Laboratory on a principle and by a method entirely different from that of Joule. This method was to measure the amount of water raised from the freezing to the boiling point when the energy of an engine is entirely expended on the brake. The investigation was conducted on a large scale and with every possible precaution against error. A 100 horse-power triple expansion engine was used in rotating a special form of brake, fitted with vanes somewhat after the manner of a turbine. The load upon it could be varied by a lever and the amount of horse-power expended deduced from the rate of rotation and the load jointly. Water from the town's mains was led into the brake and cooled to freezing point by passing through about 200 feet of piping surrounded by ice. In the brake itself its temperature was raised to boiling point and issued in that condition. "The weight of water multiplied by the rise in temperature was the measure of the heat produced, as the former product was that of the work expended." All intermediate temperatures and the sources of error inseparable from them were avoided. About 9601b. of water were boiled. The experiments had taken months of careful and anxious preparation and were, as is evident, on a very large scale. After making every imaginable correction the final value for the completed interval of temperature came out as 776·94 foot pounds per degree Fahrenheit in the latitude of Manchester, or 777·07 in latitude 45°. "Allowing for the diminished specific heat of water at 32° as compared with its average value over the whole range the number is reduced to 773·07, whereas Joule's was 772·55" which is a very small difference, "and Joule's value is thus vindicated against the attacks made upon it by Rowland and Griffiths." Professor Reynolds gave full credit to Mr. Moorby for his "prolonged and arduous labours."

Dangers from Flannelette.

An inquest was held on Dec. 28th, 1897, respecting the death of a child, three years of age, who was burnt to death, when Mr. Smelt, the city coroner, said that the wearing of cotton and flannelette had been the cause of a great increase in the number of burning cases. "Out of forty-seven children who died from burns in one winter month last year forty-three wore flannelette clothing and it was the experience of the staff at the infirmary that burning cases had become far more serious since flannelette had been so generally worn." He believed that if woollen clothing were worn to a greater extent by children "fifty lives would be saved every year in Manchester."

The Club Question in Manchester.

The Manchester and Salford Medico-Ethical Association and the Medical Guild, the former of which has just celebrated its jubilee, have abundant reasons for continuing their existence. Never surely was the profession of medicine so seriously attacked as it is to-day and though the older society is chiefly concerned with the relations of medical men towards each other it may do good service in safeguarding the just claims of the profession. The Medical Guild is the direct outcome of the movement going on all around us for sweating the medical men, and so reducing their means of living that the struggle to keep up anything like independence of spirit and self-respect is becoming more and more hopeless for a large proportion of our brethren. As it is the age of industrial conflicts, which to an outsider look more like attempts at suicide than rational efforts for the welfare of the working classes or any other, so it is necessarily the age of combination, defensive or offensive. The time has come when the medical men in Manchester and Salford must follow suit and stand loyally by each other if they are to escape the degradation and poverty which threatens them in the future. Individually little can be done, collectively something may be; but the prospect is not cheerful, for there are always those who desert their fellows, it may often be not willingly, but pressed down by the need for bread; and so, to change the simile, there are weak links in the chain. A long correspondence has been going on in the local papers as to medical clubs and in a letter to the *City News* of the 1st inst. Dr. Worswick points out how much is already done for the poor of this city. Nearly 200,000 people receive gratuitous aid at the various

hospitals and dispensaries. In every quarter of the city there are resident Poor-law medical men. "Next there are provident dispensaries for a penny per week and less providing for their tens of thousands," countenanced and patronised by well-to-do gentlemen who indulge their taste for vicarious philanthropy at the expense of the unhappy members of our profession. In addition to all these there are the "sixpenny dispensaries" run by private practitioners "in every poor locality," and the various clubs and societies, Foresters, Druids, Temperance, Working Men's Aid Associations, and many more, besides the medical clubs to be found at most large works. The payments of these various aids to cheap physic are on so small a scale that the medical man's life, if he is dependent on them, is not to be envied, and some men would prefer to break stones on the high road. But these are days for everyone wishing to manage everyone else's affairs and the medical profession is to be managed and controlled by those outside. We often enough hear when the "clergy of all denominations" are "responding to the toast" that the clerical and medical professions walk hand in hand, that the latter is the best friend of the former, that those who minister to the body are helpers to those who seek to benefit the soul. The converse does not always hold true, for it must reluctantly be confessed that too often the "clergy of all denominations," by their non-scientific and ignorant love of quackery and by their well-meant but officious and mischievous meddling, are the medical man's and the patients' most troublesome foes. The extraordinary procedure of the pastor of a Nonconformist chapel in Manchester noticed in your last number who is establishing clubs "open to healthy people of any station in life" is a case in point. There are many slums, there is gross immorality and sin—streets almost wholly given up to it—within easy reach, almost within a stone's throw of his chapel. Plenty of work is close at hand for him in his proper vocation. There is no evidence that he has succeeded in cleansing the moral atmosphere of the district, which no doubt he wishes to benefit, but he must needs leave that work in order to regulate the affairs and arrange the duties of the medical men of Hulme who, however, have not seen eye to eye with him in this matter. These clubs have therefore become affiliated with a medical aid association which "has had three surgeries and three medical men for its members," finds drugs and pays its medical men fixed salaries. One of the medical men so kept has £150 a year, with house, &c., but the kind of house may be imagined when for dining-room he has the choice of kitchen or bedroom or may dine among his patients in the waiting-room. The details of his work for the twelve months for which he engaged himself show that it is cruelly arduous and that he is one of the victims of white slavery. Medical men are so numerous that their price in the market is very low.

Jan. 5th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Death of Dr. Montgomery Ward.

DR. MONTGOMERY WARD, whose death took place rather suddenly on the 30th ult., was well known and esteemed by the medical profession of Dublin and by the general public. After being ill with influenza for a week he died apparently from cardiac failure. Dr. Ward was a graduate of Dublin University, where he obtained the degree of M.B. in 1865; he became a Fellow of the Royal College of Surgeons in Ireland in 1874 and was subsequently for many years a member of the teaching staff of the Ledwich School of Medicine and one of the visiting surgeons to Mercer's Hospital. Dr. Ward resided in Rathmines and held the position of medical officer of health to that township.

Memorial to the late Dr. Haughton.

At a meeting of the council of the Zoological Society of Ireland on Dec. 18th a resolution was passed in favour of perpetuating in some manner the memory of the great services rendered to the society by the late Dr. Haughton, formerly its president, and of attaining that object by the erection of a memorial building in the society's gardens.

Irish University Education.

At a meeting of the members of the committee appointed by the Central Catholic Club, held in Belfast on Dec. 30th, the following resolution was passed: "That this representative meeting of Catholics of Belfast desires to place on record its sense of the immediate and imperative necessity of such a settlement of the Irish University question as will place all the Catholics of Ireland on a perfect equality with their non-Catholic fellow-countrymen and at the same time desires to express the hope that in such a settlement the special needs and circumstances of the Catholics of Belfast and Ulster will not be lost sight of, and the conviction that the claims of the Catholics of this city and province cannot be done justice to except by the establishment and endowment of a Catholic university college in Belfast."

The Christmas Recess.

Medical classes began again at Queen's College, Belfast, on Jan. 4th after a short Christmas holiday.

The Royal Victoria Hospital, Belfast.

It is gratifying to be able to report that nearly one-half of the sum promised (£100,000) for the erection of this new hospital has been paid in. A sub-committee of lay and medical men are at present working out details as to the form and construction of the new building.

Cork Hospital Saturday Collection: Allocation of the Fund.

A meeting of the Cork Hospital Saturday Committee was held recently in the municipal buildings for the purpose of receiving the honorary treasurer's report and deciding on the allocation of the amount collected. One of the honorary secretaries stated that a total sum of £431 3*s.* 10*d.*, including £60 from the Hospital Record Reign Fund, had been received. The expenses amounted to £42 10*s.* 5*d.*, leaving a balance of £388 13*s.* 5*d.* available for distribution. The Mayor, who presided, said under the circumstances they should consider this a very satisfactory and gratifying statement when they bore in mind that they had been the means of distributing amongst the hospitals of the city within the past four months a sum of very close on £3500. He need hardly say he alluded to the Hospital Record Reign Fund, which was undoubtedly a most gratifying success and which had been the means of relieving the pressing wants of some of the hospitals. As a matter of fact they had got during the year between the Hospital Record Reign Fund and the Hospital Saturday Collection practically £4000. The following allocation after some discussion was agreed on: North Infirmary, £83; South Infirmary, £83; Mercy Hospital, £57; Women and Children's Hospital, £34; Fever Hospital, £34; Eye, Ear, and Throat Hospital, £30; St. Vincent's Hospital for Women and Children, £24; Lying-in Hospital, £20; and Cork Maternity, £20.

Jan. 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Fractures by Massage.

AN important discussion has taken place upon this subject at the last two meetings of the Academy of Medicine upon Dec. 21st and 29th. M. Lucas-Championnière, the pioneer in France of this method, showed a patient in whom a fracture of the lower end of the humerus had been united. There had been a great deal of movement between the bones and it had been found impossible to immobilise the fragments. Massage and immediate movement were found sufficient to restore the power of useful motion and to bring about rapid consolidation of the fracture in a good position. M. Lucas-Championnière took advantage of the occasion to remind his audience that he had employed this method for thirteen years and always with great success, and never during this time had he employed a plaster bandage or any other kind of immobilising apparatus. In fifty cases of fracture of the clavicle he had obtained by massage far superior results to those given by the most perfect form of immobilising apparatus. In the case of fracture of the humerus which he showed the fracture was one of the worst kind at a place just above the elbow-joint and comminuted. The man suffered great pain and the least movement dislocated the elbow-joint. During the first four days the elbow was placed in a moulded splint, from the fifth to the eighteenth day the arm was supported by an ordinary sling and after that had no support at all. The mere weight of the limb

sufficed to keep the fragments in a good position. From the first day the patient was massaged the acute pains rapidly disappeared. As soon as the limb appeared to be so firmly united that no chance of future displacement was likely the patient left the hospital—on the twenty-eighth day—but continued to attend as an out-patient. In place of six weeks, which was the time ordinarily given as necessary for a fractured humerus to unite, the bone in the present case was quite firm in less than three weeks and in addition the treatment used was almost painless. During the last two years M. Lucas-Championnière had treated more than twenty cases of similar fractures of the humerus and always with the same result. He had also treated many fractures of the radius, of the scapula, and of the leg. Immobility did not favour repair of the tissues; movement was necessary for repair, for movement was a necessity of life. M. Lucas-Championnière concluded by affirming that immobility as a therapeutic method should be made to disappear from surgery. M. Marc Sée, in answer, said that in his opinion the only effect of massage would be to make the callus thrown out round the fracture disappear and prevent consolidation. He himself had employed for many years compression by an indiarubber bandage—a treatment which had given him very good results and was very simple. M. Péan had recently confirmed the excellence of the results obtained by M. Lucas-Championnière's method. It was especially useful when there was not great displacement of the fragments. If the displacement was too considerable the lack of any immobilising apparatus brought about, in his opinion, union in a bad position which necessitated an operation later. M. Labbé considered that massage was excellent in articular and peri-articular fractures, but that there were other kinds of fractures in which the immobilising treatment should still be used. Such were fractures in the middle of a long bone and specially fractures of the lower third of the leg. To treat such in any other way would be to expose the patient to the risk of a false joint forming, a result which has become only too frequent of late years and which M. Labbé attributes to the too general use of the method of M. Lucas-Championnière. The latter surgeon in winding up the discussion maintained that immobility appeared to him to bring about a condition of lowered vitality in a limb, while what was desired was an active process of repair. He would move the osseous fragments every time that there was no muscular spasm to pull them out of place, but he agreed with M. Labbé that in a certain number of fractures—notably those of the lower third of the leg—the old fixation treatment ought to be maintained. He had worked out statistics comparing accidents occurring in fractures treated by immobilisation and by movement and found that they were very much more common in the first class than in the second.

The Increase of the French Population.

The Minister of Commerce has just published statistics of the population of France for the year 1896, which come as an agreeable surprise to those demographers who affirm that the population of France has been steadily decreasing for some years past. In 1895 the deaths exceeded the births by 17,183, being the worst result of any civilised nation on the face of the globe. In 1896 the births exceeded the deaths by 93,700, a result due not only to an increase in the birth-rate but to a decrease in the death-rate. In 1896 the deaths diminished by 88,100, being 851,986 in 1895, but 771,886 in 1896. The births which were only 834,173 in 1895, increased in 1896 to 865 586. As a result, therefore, the birth-rate which in 1895 was only 21 4 per 1000 has increased to 22·7 per 1000, while the death-rate which in 1895 was 22 4 per 1000 has decreased in 1896 to 20 2 per 1000. No such increase has been noticed since 1883 and every department has shared in the amelioration.

Legislation relative to the Practice of Medicine.

The new Bill which was sanctioned by the Chamber two years ago and referred ten months ago to the commission appointed by the Senate has at length reached the stage of consideration by the Senate. Dr. Treille, a member of the Senate, strongly opposed the Bill and moved the withdrawal of the first section, which provides that certain sanitary enactments shall be made applicable to all the communes in France without exception. If the ministry imposes a special regulation it could not be applied to all the communes; if the communes are left to make independent arrangements for themselves, it is not certain that in the smaller hamlets persons would be found who are possessed of the sanitary knowledge requisite for the carrying out of a special regulation. Dr. Treille is convinced that under the present laws municipalities possess sufficient powers for dealing with epidemics and for maintaining public health in the communes without resorting to fresh legislation which will interfere with personal liberty. In like manner Dr. Treille is opposed to that part of the Bill in which the notification of every infectious disease is made obligatory on medical men and midwives, and in their absence on heads of families, house stewards, managers of institutions, and in general on everyone in whose care the patient may be. Seeing that the exact diagnosis of these complaints and the giving of an opinion as to their infectiousness are often difficult even for the most accomplished specialist it would be unreasonable to lay the responsibility of notification on practitioners of less expertness and *a fortiori* on persons without medical knowledge. The same is the case with regard to compulsory disinfection which if carried out in all the communes in France in the manner prescribed by the Bill would necessitate the providing of an immense stock of portable disinfecting apparatus together with a numerous staff of attendants and would involve an expenditure quite disproportionate to the results.

Jan. 3rd.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Anatomical Studies of Leonardo da Vinci.

MEDICINE and fine art are alike interested in the "Manoscritti di Leonardo da Vinci nella Reale Biblioteca di Windsor," the first of which entitled "Della Anatomia, foglio A," now sees the light in sumptuous form, thanks to the munificence of the Russian Maecenas, M. Theodore Sabachnikoff, and the editorial intelligence and skill—"superiore a tutti elogi" (beyond all praise)—of Professor Piumati, of the Roman University. The anatomical studies of Leonardo cover the whole sphere of his scientific and artistic activity. Even on his death-bed he drew the attention of his friends to "più notomie le quali ritraeva nello Spedale di S. Maria Nuova" (several anatomical drawings he made in the S. Maria Nuova Hospital) in Florence. Long before then a leaf in manuscript in the Windsor collection, still unpublished, contains the design of two skulls dated 1489 and in the new publication above referred to there is a note in Leonardo's own handwriting which says: "Questa vernata del mille 510 credo spedire tutta tal notomia" (this winter of 1510 I think I shall get off all the anatomy of this description). Later in Rome religious intolerance, inspired by a personal grudge, arrested for the time the anatomico-physiological speculations of the mighty nature student and artist, but only for a time, as we find him afterwards showing the astonished Cardinal di Aragona "designs and notes," the fruit of anatomical studies "begun with his earliest novitiate and continued indefatigably down to the sunset of life." Florence, Milan, Rome, and France are the several stages of Leonardo's anatomical work pursued by him in harmony with his conception of creative art. "The mind of the painter ought to transmute itself uninterruptedly (*di continuo*) into the mind of nature"; the artist must master the human form in its most intimate constitution and thence win his way into the world of psychical and ethical phenomena. "E così piacesse al Nostro Autore che io potessi dimostrare la natura delli omini e i loro costumi nel modo che io descrivo la sua figura" (And so may it please the Author of our being that I should be able to demonstrate the nature of men and their manners in the very mode in which I describe their figure). Golden words these, to be taken to heart not only by the artist but by the metaphysician and moralist, if the work or the speculation of either is to correspond to reality. As to the composition now issued by M. Sabachnikoff and Professor Piumati, its existence was known to anatomists late in last century and early in this, particularly to our great Hunter, who had the highest appreciation of its value. It has remained, however, practically a sealed book till this faithful reproduction of it in its manuscript and in its drawings has made it accessible to the scientific world. Leonardo's handwriting, very close and written from right to left, is as now published easily mastered, while his somewhat obsolete

Italian is accompanied by a French translation. The whole, indeed, is a triumph of modern printing, heliotypy, and editing—the drawings particularly being reproduced with marvellous clearness and fidelity. A brief explanatory introduction by Professor Piumati puts the reader in touch with Leonardo, after which comes a masterly dissertation by Dr. Mathias Duval, of the Académie de Médecine and of the Anthropological School of Paris. Then follow 245 drawings and 34 "fogli" (leaves) in heliotype, two of which are double. An analytical index completes the unique value of the work. Only 400 copies have been printed, the first for presentation to King Humbert, the second to Queen Victoria, to whom the work is dedicated, and a third to H.R.H. the Prince of Wales. The publication, as scientific Italy is proud to anticipate, will be "epoch-making" and must inspire yet another page to be added to the "History of Medicine," in which for the first time Leonardo da Vinci will appear as "sommo nell' anatomia descrittiva e primo cultore dell' anatomia comparata" (supreme in descriptive anatomy and first cultivator of comparative anatomy). In spite, indeed, of her able pioneers in medical history, such as Puccinotti and Cantoni, Italy has yet to do justice to many of her mediæval nature-students, notably in the domain of the healing art. Certainly this revived interest in Leonardo ought not to expend itself before a great contemporary of his is rehabilitated—a medical man far in advance of his time in operative surgery, the Florentine Antonio Benivieni, whose manuscripts and other professional documents bearing on his art ought to be given to the light in continuation of the work devoted to him but only partially carried out by the late distinguished surgeon, Professor Carlo Burci.

Jan. 1st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

A Criticism of Serum Treatment for Diphtheria.

THIS was the title of a brilliant discourse delivered by Professor Purjesz at the last meeting of the Budapest Medical Society, in which he said that although he was by no means an adversary of the treatment yet he could not consider the utility of serum injections as proved. The advocates of serum treatment maintain that since its introduction the mortality from diphtheria has diminished. The Hungarian statistics show that the mortality from diphtheria had fallen in 1895 from 22,000 to 17,000, but it had also fallen from 1892 to 1894 (before the introduction of serum) from 49,000 to 22,000. The advocates of the serum treatment further state that the relative mortality from diphtheria had also greatly diminished and the figures, if not closely scrutinised, would seem to confirm this statement, for the statistics show that of 872 patients treated with serum 156 died—i.e., 17 per cent.; whereas of 2889 patients not treated with serum 1137 succumbed—i.e., 41 per cent. But these figures are misleading. It is evident that all those who received injections of serum were entered in the statistics indiscriminately whether the attack had been a mild or serious one, whilst of those who did not receive injections only the serious cases were notified which had passed through the hands of a medical man, the slight cases passing unnoticed. The omission of these mild cases will amply account for the difference of the numbers. Hospital observations are fallacious on the same grounds. In the Budapest Stephanie Hospital for Children the mortality from diphtheria had sunk from 70 per cent. to 20–22 per cent. since the introduction of serum, but that appears in an altogether different light when we learn that the morbidity of this disease had been steadily declining in Budapest since 1892, so much so that in spite of the increase of population it was reduced in 1895 to one-half of what it had been in the year 1892. Apart from the mildness of the epidemic there remains yet another factor to account for the relative decrease of mortality. In the year 1892 12 per cent. of all children suffering from diphtheria in Budapest were treated in the Hospital for Children, whereas in 1895 the hospital cases amounted to 22 per cent. of the children suffering from diphtheria, the explanation of which is not to be sought for in the epidemic—this having been milder in 1895 than in 1892—but in the fact that many milder cases had been brought to the hospital for the purpose of the administration of the serum. Professor Purjesz, in conclusion, adduced some other striking arguments and repeated his conviction that the alleged usefulness of the serum treatment still remains to be proved.

Extirpation of an Aneurysm of the Iliac Artery.

The patient, a man aged thirty-two years, noticed two years ago a pulsating swelling in the right iliac region. On examination an aneurysm was found at the junction of the iliac and the femoral arteries, its length being six centimetres (2½ in.) and its breadth four centimetres (1½ in.). Digital compression could not be tolerated by the patient. Professor Dollinger thought that gangrene of the extremity following upon tying of the iliac artery was not to be feared in this case because one could not feel any pulsation of the femoral, popliteal, or tibial artery of the extremity affected, which nevertheless appeared to correspond in colour, strength, temperature, and circumference with the healthy one. Consequently it might be assumed that the efferent vessel of the aneurysm was blocked and that collateral circulation was fully developed. Professor Dollinger made an incision parallel to Poupart's ligament, pushed the peritoneum high up, and then tied the external iliac artery above the aneurysm. That being done he shelled out the aneurysm from its surroundings and tied the femoral artery. There were no complications following the operation and the patient was restored to health in a very short space of time.

Strangulated Hernia.

Dr. Baron, of Budapest, in a very interesting paper, read at the Congress of Hungarian Medical Men in Trencsen, narrated the histories of two cases of inguinal hernia in each of which there were two hernial sacs one underneath the other, the bowel being strangulated in the channel communicating between the two sacs. The first case was brought to him on the fourth day of strangulation. On operation the portion of bowel involved was found to be gangrenous and the patient soon died from sepsis in spite of prompt resection of the bowel. The second case, in which the operation was performed on the first day of strangulation, did perfectly well. Dr. Baron drew attention to the fact that pain at the site of strangulation is the most valuable of the diagnostic symptoms because it exists from the very beginning of strangulation and lasts till this is relieved, whereas vomiting and constipation are only later and by no means constant symptoms. He therefore considered pain to be the sole pathognomonic sign of strangulation. In ordinary cases this pain is felt at the inguinal ring, but in these two cases it was situated at a lower point where the two sacs communicated. The hernia was very tense below the constricting band and was quite soft above it, the external opening of the inguinal canal admitting the top of the finger. Dr. Baron concluded that operation should be resorted to at the onset of pain.

Dec. 23rd, 1897.

RUSSIA.

(FROM OUR OWN CORRESPONDENT.)

The Harvest Prospects in Russia.

THE influence which a famine, or to be more exact a poor harvest, which will in some instances threaten famine, has upon the public health and its close relation to the prevalence of certain zymotic diseases are so obvious that no apology is required for quoting the following official figures relating to the prospects of the winter-crops in Russia. Taking the rural population of the sixty "governments" of European Russia it is found that the average yield of grain per head is only 9·33 *poods* (a *pood* is equivalent to thirty-six English pounds). This is very considerably less than the average yield of the last five years, which has been as follows: 1896, 12·01 poods; 1895, 12·68 poods; 1894, 14·35 poods; 1893, 12·55 poods; and 1892, 10·02 poods. The year 1892 was also a bad harvest year and immediately followed the year of the great famine, 1891, when the average yield was only 8·23 poods per head of the rural population. As in that disastrous year, the harvest in the present year has failed principally in the central and south-eastern governments—the well-known "black-earth zone." Not only is there a falling-off in the grain crops, but the yield of hay and of other crops used as food for cattle is also considerably below the average. The yield of straw from the winter crops is also much smaller than the average for the last four years, though higher than that of either 1891 or 1892. The

above figures have been published by the Central Statistical Committee (a government department).

Quarantine in the Persian Gulf.

If the following picture of the quarantine station at Bassowah in the Persian Gulf be a true one Europe has reason to be grateful that she does not depend solely upon this establishment to guard her from the irruption of plague or other infectious diseases from the East. According to the Constantinople correspondent of the *Russkia Viédomosti* the quarantine building consists of a wretched little house containing five rooms, each of which could accommodate five or six persons. The rooms are quite unfurnished and open on to an inner courtyard about 100 square metres in area. There is no attempt to provide the inmates with food or attendance. The sole person in charge of the establishment is a watchman. The passengers have free communication with the neighbouring town, the inhabitants of which are also freely admitted to the islet on which the station is built. The passengers' dirty linen is sent to the town to be washed. The separate parts of a disinfecting chamber, which were sent out to be put together for use in the lazaret, are lying scattered in different places. There is but one latrine and that is at a considerable distance from the station. Such are some of the charges brought by the correspondent of a serious Russian journal, and one naturally asks, Are they true, and, if so, who is responsible? According to the writer of the article it is the International Sanitary Council in Constantinople which is responsible; and he adds that the state of affairs just described is largely due to the fact that there are too many Turkish members of the Council and that the other European powers are represented in it, not by European physicians, but by Levantines, who take a wholly oriental view of their duties and responsibilities.

The Serum Treatment of Syphilis.

Dr. Sukof has recently published in the form of a dissertation for his Doctor's degree the results of some experiments made in the treatment of syphilis by the serum of animals. Summing up the experience of former observers he finds that the results in this form of treatment have been most varied, some regarding the method as almost specific, offering the promise of cure in the large majority of cases, while other observers have failed to obtain any favourable results and consider the method useless or worse than useless. Dr. Sukof's method differed slightly from those formerly employed in that he prepared the horses from which the serum was taken by repeated doses of mercury until marked signs of mercurialism showed themselves. Twelve patients suffering from syphilis received a series of injections of blood serum taken from these mercurialised horses. The results were not favourable. The patients lost in weight with few exceptions; the disappearance of symptoms when it occurred was only temporary; the blood in every case was found to contain a diminished number of red and white corpuscles, the hæmoglobin was lessened in quantity, and the specific gravity of the blood fell below the normal. The injections were sometimes accompanied by unpleasant symptoms, such as gastric disturbance, pains of various kinds, erythematous rashes, and some rise in temperature, consequently Dr. Sukof is unable to regard the serum of mercurialised horses as a promising method of treating syphilis.

A Correction.

The statement recently published that a Pan-Russian Conference on Leprosy would be held in St. Petersburg during the year 1898 is officially declared to be without foundation.

Dec. 19th (31st), 1897.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Vaccine Virus of the Health Department of New York.

SINCE 1895 the vaccine laboratory of the New York Health Department has been experimenting with and investigating the methods employed in various parts of the world for the preservation and production of vaccine virus. The choice and care of animals, the places, methods, and virus most suitable for inoculation, the time and manner of collection, and the preparation and preservation of virus after collection, have all been subjects of study. The most noted vaccine laboratories in Europe and this country have been visited and their practice studied. In consequence of those investigations modifications in the methods here followed have been made; but the most important is the entire change in form of the vaccine virus issued and recommended for use. For instance, the virus formerly employed was the serum which issues after scraping from the base of a vaccine pock, dried on quills or ivory points. The old-fashioned points physicians could purchase in the drug-stores. But these are all done away with and we now have a liquid glycerinated pulp. The function of the glycerine is to produce a homogeneous mixture and to act as a harmless antiseptic against germs accidentally introduced. Before the virus derived from an animal is issued a regular necropsy is performed on the animal and the organs are carefully examined for any evidence of disease. Then a sample of the virus is subjected to a bacteriological examination and a second is forwarded to the clinical tester for test. No virus is allowed to go out unless the reports of the pathologist, bacteriologist, and clinical tester are all satisfactory.

The Therapeutical Value of Medicinal Tablets.

The Surgeon-General of the Army has instituted tests of the value of tablets with the following results. The tablet furnishes the most convenient mode of transporting, measuring, and storing medicines for army use. The therapeutic effects of drugs supplied in tablet form are, to say the least, as well preserved as they are by any other means. A widespread misconception of the functions and proper use of the tablets has led to an unwarranted distrust of the therapeutic efficiency of some tablets supplied by the medical department of the army to army posts. Experience has proved what previous considerations should have made clear, that to secure prompt and salutary results it is desirable that before administering medicines so prepared they should be dissolved or suspended in a suitable medium. Properly used, the question of the consistency of the tablet mass is not one of vital importance, but there can be no doubt that for convenience of manipulation tablets would be a decided improvement upon those now in use provided that it can be proved that convenience cannot be gained by a sacrifice of the integrity of the drug. There appears to be no limit to the availability of the tablet as a means of medication. The deterioration found in the tablets examined in the laboratory was not greater than would have occurred in any other form of preparation. The more frequent purchases of apomorphine, cannabis indica, Calabar bean, and cocaine hydrochlorate are desirable. It would be also an advantage to endeavour to secure tablets prepared from tinctures or extracts of definite strength, alkaloidal or other, to be determined by analysts.

Louisiana Board of Health Resigns.

The merchants of New Orleans attribute the entrance of yellow fever into the city to the negligence of the Board of Health of that State in failing to stamp it out sooner and prevent its gaining such headway in the beginning. A meeting was arranged for the purpose of making a united attack upon the Board of Health. The Governor, however, forestalled the merchants and announced through the secretary of the Cotton Exchange that the President and other members of the Board of Health had placed their resignations in his hands. Those members of the board who were appointed by the City Council will be asked by the mayor to resign and as soon as the board can close up its business the members will give way to their successors.

Health of the Army.

From the report of the Surgeon-General of the Army it appears that the death-rate from all causes constituted 5·44 per 1000 of the strength, not much higher than that of the previous year and much lower than the average annual rate (7·51) of the previous ten years. The corresponding rates from disease were 3·83, 3 55, and 5 10; from injury 1·62, 1·61, and 2 41. The absolute number of deaths was 148, of which 44 were the result of injury and 104 of disease. Typhoid fever caused 17 of these deaths, disease of the heart 13, pneumonia 9, disease of the kidney 8, alcoholism 7, tuberculosis of the lung 6, gunshot injuries 14, and fractures not gunshot 7. The largest number of deaths at any one post was 10 at Fort Sam Houston, Texas, giving a death-rate of 15 48 per 1000 of strength; but leaving arsenals and small posts out of consideration the largest death-rates were 23·81 caused by 3 deaths at Fort Ringgold,

Texas, 18·47 by 7 deaths at Fort Robinson, Nebraska, and 17·39 by 6 deaths at Jefferson Barracks, Missouri. Great improvement has taken place in the past few years in the sanitary conditions of the coloured troops as manifested by their lessened rates of sickness, disability, and death. The white troops have participated in the improvement, although their rates have not fallen as rapidly as those of the coloured men. There was no doubt greater room for improvement in the sanitary status of the coloured troops and the men may have responded with more earnestness to efforts in this direction. During the past year the total admission rate for all causes among the coloured troops was 868·88 per thousand of strength, as compared with 1132·49 among the whites for the same year, and as compared with 915·88 among themselves in the previous year, and with 1368·64 their own annual average for the previous decade, the annual average of the white troops having been 1284·95. The non-efficiency from all causes among the coloured troops during the year was 25·75 per 1000 of strength, as compared with 34·72 among the white troops. The coloured soldier lost 9·42 days from disability during the year and the white soldier 12·71; and the average time of treatment of each case was among the coloured troops 10·82 days and among the whites 11·22 days. The causes of disability from which the coloured men suffered less than the white troops were malarial fevers, venereal diseases, alcoholism, diarrhœa, and injuries; those from which they suffered more were neuralgia, rheumatism and myalgia, tonsillitis, colic, constipation, conjunctivitis, and pneumonia.

Epidemic of Typhoid Fever in New Jersey.

The city of Paterson, New Jersey, is now experiencing an epidemic of typhoid fever, ninety-nine cases having been recorded in the town and numerous others reported in the surrounding country. The point from which the infection spread was a creamery located forty miles distant from the city. It was discovered that the three sons of the proprietor of the creamery either were or had been suffering from typhoid fever and that the drain from the premises occupied by those patients reached a stream the water of which was used to wash the milk-cans. With incredible carelessness the water thus used was taken from the stream at the point a few feet below the outlet of the drain-pipe referred to. More than fifty farmers brought milk to the creamery, whence it was distributed to customers. The epidemic was suppressed promptly by the State authorities forbidding the use of the water of the stream by the dairymen.

Dec. 20th, 1897.

Obituary.

REV. THOMAS EDWARD CLARK, M.D., C.M. ABERD., M.R.C.S. ENG., L.S.A.

THE death of the Rev. T. E. Clark occurred on Christmas eve at his residence, Alexandra-road, Clifton. The deceased, who was in his sixty-third year, received his medical education at the Bristol Medical School and at Aberdeen University and took the qualifications of M.R.C.S. Eng. in 1856 and the L.S.A. in 1857. In 1872 he graduated as M.D. and C.M. Aberd. Dr. Clark was formerly surgeon to the Bristol Royal Infirmary and lecturer on Botany at the Bristol Medical School. He was well known and highly respected in Clifton where he practised until twelve years ago, when he gave up medical practice to take holy orders. In 1885 he was ordained by the Bishop of Sodor and Man and a few years later was appointed vicar of Pott-Shrigley, near Macclesfield, remaining there till 1890, when he returned to Clifton and worked for some years in St. Peter's parish. Recently he had been appointed vicar of Staverton, but did not live to take up his duties there. The funeral took place at Arno's Vale Cemetery on Dec. 29th and was largely attended by many friends of the deceased, members of the medical profession and residents of Clifton.

HUGH CALDERWOOD, M.B., C.M., B.SC. GLASG.

THE news of the death, after a very short illness, of Dr. Hugh Calderwood, Demonstrator of Anatomy in the University of Glasgow, has caused great regret amongst his friends and colleagues on the teaching staff and will be received with sad surprise by the students who are just re-assembling after the Christmas vacation. Dr. Calderwood entered the Glasgow University in 1891, and after a very distinguished career in the Faculties of Medicine and Science attained the degrees of M.B., C.M. and of B.Sc., the latter with first-class honours. Both as a student and subsequently as a demonstrator of anatomy under Professor Cleland he speedily won the friendship and esteem of all with whom he came into contact, who realise by his untimely death, not merely a personal loss, though this is great, but that the end has arrived of a career which gave promise of usefulness and distinction.

Medical News.

SOUTH-WEST LONDON MEDICAL SOCIETY.—A meeting of this society will be held at Stanley's Restaurant, 235, Lavender-hill (close to Clapham-junction), on Wednesday, Jan. 12th, at 8 P.M. Mr. Brudenell Carter will give an address on Legislation as a Remedy for Medical Grievances. All medical men interested in the subject are cordially invited to attend and to take part in the discussion.

GLOUCESTER INFIRMARY.—At the quarterly meeting of this institution held on Dec. 30th it was announced that a legacy of £100 had been received from the late Sir Thomas Robinson and that the extension of the nursing accommodation will shortly be proceeded with. A vote of thanks was passed to Sir Squire Bancroft for his recent reading of the "Christmas Carol" in aid of the infirmary and Children's Hospital.

BEQUESTS AND DONATIONS TO HOSPITALS.—The late Mr. J. D. Birchall, of Bowden Hall, near Gloucester, has bequeathed £500 to the Gloucester General Infirmary and £100 to the Gloucester District Nursing Society.—Mr. James Colmer, late of Bath, has bequeathed £500 to the Royal United Hospital, Bath.—Lady Willox has given a donation of £2000 to the building fund of the new Liverpool Consumptive Hospital.—A donation of £500 towards the cancer fund of the Middlesex Hospital has been received from a lady who wishes to remain unknown; also from the Corporation of the City of London a grant of £105.—The Bristol Eye Infirmary has received an anonymous gift of £500.—The late Mr. W. J. Croft has bequeathed £3000 to the Grimsby and District Hospital.—The late Mrs. Martha Burrell has bequeathed £100, free of legacy duty, to the Jenny Lind Infirmary, Norwich.—The late Sir George Osborne Morgan, M.P., has bequeathed £100 to the Wrexham Infirmary.—The late Mr. Francis Berryman has bequeathed £100 to the Clevedon Cottage Hospital.—The honorary secretary of the Hospital and Home for Incurable Children, Maida-vale, London, has received from the executors of Lady V. Long Wellesley a legacy of £500 and a donation of £250 from Messrs. Barnato Brothers.—Miss Cecilia S. Robson, late of Torquay, has bequeathed £1000 to the Torbay Hospital, Torquay, and £1000 to the Royal Eye Infirmary, Plymouth.—The late Lady Woodiwiss has bequeathed £1660 to the Derbyshire Children's Hospital.—Under the will of the late Mr. Henry Hancock, of Westenholme-road, Sheffield, a legacy of £500 has been left to the Sheffield Royal Hospital and £100 to the Sheffield Royal Infirmary.—The treasurer of Charing-cross Hospital has received a donation of £500 from the Worshipful Company of Goldsmiths; also £1000 from the executors of the late Mr. Francis Jacox for the endowment of a bed; also £250 from the Worshipful Company of Grocers; also £100 from Mr. Edward McCallan; also £1000 from Messrs. Barnato Brothers to endow a bed in memory of the late Mr. Barnato; and also £233, the proceeds of the concert given in aid of the special appeal fund by the Royal Amateur Orchestral Society in November, 1897.—The treasurer of St. George's Hospital has received £1000 from the executors of the late Mr. Barnato for the endowment of a bed.—The committee of the North London or University Hospital has received £100 from the People's Contribution Fund.—The board of management of St. Mary's Hospital, Paddington, London, has received a donation of £1000 from Mr. H. L. Raphael for the endowment of a bed in the Victoria

ward in memory of his late wife; also £1000 from the executors of the late Mr. Barnato for the endowment of a bed to be called "The B. Barnato Bed"; also £200 from Mr. Frank M. Dutton; and also a donation of £105 from Mr. Benyon.—The treasurer of Guy's Hospital has received from the Worshipful Company of Merchant Taylors £262 10s. (the second moiety of 500 guineas); also from "In Memoriam, Nov. 3rd," £100; also £105 from Mr. Charles E. Keyser; and also £250 from the Worshipful Company of Grocers in aid of the Sustentation Fund.—The committee of the London Fever Hospital, Islington, has received £105 from the executors of the late Mr. Henry Moore, and £100 from the Worshipful Company of Goldsmiths.—The Board of Management of King's College Hospital, Lincoln's-inn, London, has received a donation of £1000 from a "Friend" for the endowment of a bed; also a contribution of £104 given anonymously; and also £100 from Mr. Charles P. Johnson.—The committee of the Dental Hospital, Leicester-square, London, has received £100 from Mr. Frank M. Dutton towards the re-building of the hospital.—The committee of the North-Eastern Hospital for Children, Hackney-road, Shoreditch, has received a contribution of £100 from the Hackney Society in Aid of the Children's Hospital.—The Worshipful Company of Grocers has made a grant of £250 towards the funds of St. Thomas's Hospital, London; and Mr. T. F. Blackwell, a governor of St. Thomas's Hospital, has contributed £1000 for the endowment of a bed in perpetuity.—The board of management of the Metropolitan Convalescent Institution, Walton-on-Thames, Broadstairs, and Bexhill-on-Sea, has received a grant of £105 from the Corporation of the City of London.—The Worshipful Company of Grocers has made a donation of £100 to the Royal Hospital for Incurables, West-hill, Putney-heath.—The committee of the North-West London Hospital, Kentish Town-road, has received a donation of £300 from "M. P." for the endowment of a cot; also £300 from the Baroness de Hirsch, in addition to previous donations.—The late Mrs. Caroline Wallis bequeathed 1000 guineas to the London Temperance Hospital.—The late Miss Furner bequeathed £100 to the Royal London Ophthalmic Hospital, Moorfields.—The Board of Management of the British Home for Incurables, Streatham-common, has received £100 from "E. M. E.," being the thirteenth donation of a similar amount.—Mr. John White, late of Bristol, has bequeathed £500 each to the Bristol Children's Hospital and the Bristol Royal Infirmary and £200 to the Bristol Eye Hospital.—The late Mr. John Snowball has bequeathed £6320 to the Durham County Hospital.—The grand variety entertainment recently held at Brighton in aid of the St. John's Convalescent Home for Children, Kemp Town, realised for the benefit of the charity the sum of £102 4s. 1d.—Mr. George Pears, a coal-owner, has contributed £100 to Lady Eden's Cottage Hospital scheme for the Auckland district.—Mr. George Denison Faber has sent a donation of £1000 as a New Year's gift to the treasurer of the Leeds Infirmary.

DIPHTHERIA IN LONDON.—In the concluding three weeks of the past year the amount of fatal diphtheria in London was almost identical in its aggregate with the total of deaths in the preceding three weeks. Thus in the week ended Dec. 18th the total of deaths registered was 63, a number the same as that of three weeks earlier, and again, whilst the corrected decennial average for the earlier week ended Nov. 27th was exceeded by 13, the average for the later week ended Dec. 18th was exceeded by 12 deaths. In the week ended Dec. 25th the registered deaths fell somewhat, as might have been expected, seeing that Christmas Day came within the week; but even so the 56 deaths registered were 12 in excess of the decennial average for the week and compare with 52 registered deaths three weeks previously. In the week ended on Jan. 1st there was a further fall to 53 registered deaths, as against 58 three weeks earlier, but Bank Holiday came during this week, and still the decennial average was exceeded, though on this occasion only by 8 deaths. There were 1086 patients suffering from diphtheria who spent Christmas Day in London hospitals, the total having fallen to 1070 on the first day of the present month. In Christmas week the sanitary districts suffering most heavily from fatal diphtheria were Poplar with 6 deaths, Islington with 5 deaths, and St. Pancras, Fulham, and Camberwell, each with 4 deaths, whilst last week Fulham, Islington, and Hackney each had 5 deaths, and Chelsea and Camberwell each had 4 deaths, these heading the list.

WATER-SUPPLY FOR PEMBROKE DOCK.—The Local Government Board have sanctioned the scheme for the supply of water for Pembroke Dock from Milton.

THE LATE DR. WADHAM.—The funeral of the late Dr. William Wadham took place at Frenchay, Gloucestershire, on Dec. 31st, 1897, the interment being in a new grave near the family vault. There were several members of the Wadham family present and also many friends of the deceased.

PRESENTATIONS TO MEDICAL MEN.—Mr. Robert Carson Nicholls, L.R.C.P.Irel., of Tilehurst, Reading, at an entertainment in the village hall on the 16th ult., was the recipient of a gold watch and chain from numerous friends as a token of their appreciation of his professional services during the twelve years he had practised in that parish.—The Ambulance Corps connected with the Glasgow and South Western and North British Railways (College Division), at their annual meeting for presentation of prizes on the 21st ult., presented the lecturers of each of the divisions, Dr. Robert Wilson and Mr. William Chalmers, L.F.P.S. Glasg., with valuable testimonials in recognition of their services during the season.—The members of the "First Aid" class of the Randwick, New South Wales, branch of the St. John Ambulance Association have presented Dr. James Adam Dick with a silver smoking set in recognition of his services as Lecturer; and the Paddington, New South Wales, branch of the St. John Ambulance Association has recognised the services rendered by the honorary medical instructor, Mr. G. H. W. Smith, L.R.C.P. Edin., L.F.P.S. Glasg., of Paddington, by presenting him with a valuable piece of plate.

THE OPERATING THEATRE AT WESTMINSTER HOSPITAL.—The old theatre has been entirely remodeled, improved, and enlarged, being 7 ft. 6 in. longer than formerly, and the floor of the theatre has been lowered 2 ft. The old wooden seating, which was in a semicircular form rising from the ground at one end of the theatre to near the ceiling, has been entirely removed and accommodation is now provided for forty-five students by a marble gallery 2 ft. 6 in. wide all round the theatre at a height of 6 ft. 6 in. from the floor; by this means, which is, we believe, unique for an operating theatre, the entire floor-space of the theatre is available as working space for the surgeons, &c., and the students will have a very much better view of the operations from the gallery than formerly. The room on the right of the theatre has been taken out square, as this room was cramped and almost useless for its purpose before. The walls and ceilings of all these rooms are entirely lined with glazed tiles, those on the ceilings being separately screwed, each tile being made with a lap-joint. There is a dado as high as the gallery of olive-green tiles round the theatre and a dado 4 ft. high round the other rooms. The remainder of the tiling of the walls is of a warm cream-colour, the ceilings being white. All corners throughout are rounded to facilitate cleaning. The floors are of white marble mosaic with a coloured border. The skylight of the theatre is double glazed with an air space of 7 in. between the glass with the object of equalising the temperature; the outer light can easily be opened and cleaned from the gutter. The hot water heating and supply is all worked from the small heating chamber near the entrance and is so arranged that the attendant has only to turn a handle and the theatre will in a few minutes be heated by hot water and by turning another handle hot water will be supplied to all the fittings; thus at any hour of the night or day these rooms can be heated and supplied with hot water independently of the rest of the hospital. The case containing the hot-water pipes in the theatre is fed with fresh air direct from outside, the inlet being glazed stoneware pipes for easy cleaning, also with a fresh-air supply radiator, which is hinged so that it can readily be cleaned; the outlets for vitiated air are next to the ceiling. The artificial lighting is entirely by electricity, a pendant in the centre and brackets on the walls, the exposed wires being covered with indiarubber so that they can be washed. A separate main is laid for electrolysis, the cautery, or a motor. Gas is laid on to the several sterilisers and a hood is placed over these with an extract flue to carry off the fumes.

LIFEBOAT SATURDAY IN BRISTOL.—The committee's account of receipts and expenditure for the Bristol Lifeboat Saturday Fund which has just been issued shows that a sum of over £300 has been remitted to the National Lifeboat Institution as a result of their efforts.

POISONING BY COCKLES.—At an inquest held at Begelly, near Tenby, on Dec. 31st, 1897, upon the body of a child the jury returned a verdict to the effect that death had resulted from ptomaine poisoning through accidentally eating decomposed cockles.

MEMORIAL TO THE LATE DR. R. E. ENGLAND.—On Christmas-eve a set of "Stations of the Cross," which had been presented by the congregation of St. Bartholomew's, Dover, was dedicated as a memorial to the late Richard Edward England, M.D. Edin., who was a regular attendant at this church.

A GOLF TOURNAMENT.—It is proposed to start a golf tournament (handicap) confined to medical men. A committee is being formed to carry out the scheme. The plan suggested is that matches shall be played where and when each pair drawn shall mutually arrange (within twenty miles of London if one competitor so desire). The entrance fee will be about 7*s.* 6*d.*

BRISTOL DISPENSARY.—The committee in their annual statement of accounts for 1897 just issued mention that during the past year the new branch dispensary at Bedminster has been opened. The cost of the new building was £2750; the annual expense is estimated at between £300 and £400 per annum; and the report adds that the present subscriptions, supplemented by the income derived from the funded property of the institution, will be insufficient to meet the outlay. Under these circumstances the committee make an urgent appeal for funds to place the finances in a satisfactory position. The treasurer acknowledges anonymous donations of £250 and £150. The following is an analysis of the work accomplished in 1897:—Sick patients remaining at the end of 1896, 1228; admitted in 1897, 9651; total, 10 879. Midwifery patients undelivered at the end of 1896, 80; admitted in 1897, 471; total, 551. Patients cured or relieved, 9488; died, 235; remaining on admission books, 1156; total, 10,879. Women delivered, 477; remaining undelivered, 74; total, 551. Children born, 464.

BRITISH ORTHOPÆDIC SOCIETY.—The third annual meeting of this society was held at the City Orthopædic Hospital on Dec. 15th, Mr. Noble Smith being in the chair. Mr. Keetley was re-elected honorary treasurer, and Mr. Tubby, Mr. Thelwall Thomas, Mr. Vincent Jackson, and Mr. D'Arcy Power were elected to fill the vacancies on the council. Mr. E. Muirhead Little was elected an honorary secretary to succeed Mr. Tubby, whose term of office had expired and who did not seek re-election. An ordinary meeting of the society followed, Mr. Noble Smith presiding. A discussion on Fibrous Ankylosis and its Treatment was opened by Mr. C. B. Keetley, who said that he believed true fibrous ankylosis of joints was very rare and that when it did exist it was only as a temporary state of a joint on its way to osseous ankylosis. Many cases regarded as of fibrous ankylosis were really examples of movement limited by some cause outside the joint—e.g., mal-united fracture, inflammatory deformity, inflammatory peri-articular adhesions, &c. When joints which have been supposed to be the seats of fibrous ankylosis have been opened years afterwards they have often been found free from internal adhesions and with the cartilage intact. Bone-setters were sometimes said to have taught surgeons something of value, but Mr. Keetley believed that they had done nothing of the kind and that to forcibly move a joint of which the exact condition was unknown was like working in the dark.—Mr. Noble Smith thought that early movement was most valuable after sprains and dislocations in preventing stiffness.—Mr. Muirhead Little said that he did not agree with the opinion that fibrous ankylosis of the knee seldom occurred and described one case in which, on laying open the knee, true fibrous ankylosis was found which was of long standing.—Mr. Tubby quoted a case showing the advantage of exploration of a joint in case of injury of doubtful nature and he also described a case of true fibrous ankylosis of the knee.—Mr. Keetley, in reply, said that he did not deny the occasional occurrence of true fibrous ankylosis, for he had seen such cases. The younger the patient the greater the likelihood of fibrous ankylosis in such a joint as the knee. Mr. Little's case was doubtless one of osteomyelitis.

Appointments.

Successful Applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ALEXANDER, J. W., M.R.C.P. Edin., L.R.C.P., L.R.C.S., L.F.P.S. Glasg., has been appointed Medical Officer for the Armley Sanitary District and the Workhouse by the Bramley Board of Guardians.

ANDERSON J. A., M.D. Glasg., has been appointed Medical Officer by the Wigtownshire Combination Poor-house, vice T. Easton, resigned.

ANNINGSON, B., M.D. Cantab., M.R.C.S., has been re-appointed Medical Officer of Health by the Chesterton Urban District Council.

BARKER, GEORGE HENRY, M.D., L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the C (Clifton) Division of the Bristol Police.

BROWNRIDGE, ROBT., M.B., C.M. Glasg., has been appointed Medical Officer for the Medical District, No. 3, by the Paisley Parish Council, vice W. F. Gibb, resigned.

BRICKWELL, J., M.R.C.S., has been re-appointed a District Medical Officer by the Eton Board of Guardians and Rural District Council.

CARBERY, E., M.B., B.Ch., B.A.O. Dubl., has been appointed House-Physician to the City of London Hospital for Diseases of the Chest, Victoria-park, E.

CHALLINOR, CEDRIC, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Vict., has been appointed Certifying Factory Surgeon for the Leigh, Lancs., District, vice G. H. Evans, deceased.

CLARK, W. W., M.D. Edin., M.R.C.S., has been re-appointed Medical Officer of Health by the Wellingborough Urban District Council.

DIBBS, WM. STEWARD, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A., has been appointed Medical Officer and Public Vaccinator for Hedgerley and Hedgerley Dean, Bucks, Eton Union.

DICKSON, GRAEME, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health by the Rural District Councils of Hay, Breconshire; Painscastle, Radnorshire; and Brechwardine, Herefordshire.

GRAVELY, R., M.R.C.S., has been re-appointed Medical Officer of Health by the Chailey Rural District Council.

GETHIN-JONES, OWEN, M.D. Glasg., has been appointed Medical Officer of Health by the Porthcawl, Glamorganshire, District Council.

GREEN, T. A., M.D., C.M. Edin., has been appointed Medical Officer of Health by the Meltham Urban District Council.

HAMILTON, SAMUEL, B.A., M.B., B.Ch., has been appointed Medical Officer and Public Vaccinator to the Saint Mellons District of the Newport, Monmouthshire, Union, vice W. H. Richards, resigned.

HERBERT, WILLIAM, M.R.C.S., L.R.C.P., has been appointed Resident Medical Officer to the Wirral Children's Hospital, Birkenhead.

HILL, HEDLEY, M.D. Brux., L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the B (Bedminster) Division of the Bristol Police.

HOMER, T., L.R.C.S., L.R.C.P. Edin., has been appointed Medical Officer of Health for the Small Isles District of Inverness-shire, vice J. Dewar, resigned; and also appointed Parochial Medical Officer and Public Vaccinator for Small Isles, Inverness-shire, vice J. Maxwell, resigned.

HOUGHTON, E. H., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed Medical Officer of Health by the Mansfield Woodhouse Urban District Council.

KENNEDY, WILLIAM PLAYER, B.A., M.D., B.C.H. Trin. Coll., Dubl., has been appointed Surgeon to the Lydney and Aveburton Cottage Hospital.

LECHE, ARTHUR, M.R.C.S., L.R.C.P. Edin., has been appointed Medical Officer to the Workhouse and No. 7 District by the Axbridge Board of Guardians, vice H. S. Smith, resigned.

LLOYD, L. J., L.R.C.P. Lond., M.R.C.S., has been appointed an Assistant Medical Officer for the Workhouse and Infirmary of the Parish of St. Mary Abbotts, Kensington.

MCKINLAY, J. R., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Wallasey Dispensary, vice A. H. Godwin, resigned.

MOORE, S., M.D., M.Ch., M.A.O., R.U.I., has been appointed to the West District of the Holbeck Union, vice J. W. H. Brown, resigned.

OGDEN, O. W., M.D. Durh., M.R.C.S., L.R.C.P., has been appointed Assistant Surgeon to the Fleming Memorial Hospital for Sick Children, Newcastle-on-Tyne.

PATERSON, C. E., M.D. Edin., has been re-appointed Medical Officer for the Frimley Sanitary District of the Farnham Union.

THORMAN, W. H., B.A. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident Medical Officer to the Royal United Hospital, Bath, vice W. H. Cooke, resigned.

TOTHILL, F. C., M.B., C.M. Edin., has been re-appointed a District Medical Officer by the Staines Board of Guardians and Rural District Council.

WATT, J. P., M.B., C.M. Edin., D.P.H., has been appointed Medical Officer for Rosehearty.

YOUNG, JAMES, M.D., C.M. Glasg., has been appointed Surgeon to the D (St. George's) Division of the Bristol Police.

ERRATUM.—In our last week's issue in the appointment of C. N. THOMAS, instead of the "Sydney" read the *Lydney* District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ANCOATS HOSPITAL, Manchester.—Resident Junior House Surgeon. Salary £50, with board and washing.

DEPTFORD MEDICAL MISSION.—Medical Superintendent. Salary £150, without board or lodging. Apply to the Hon. Medical Director, 21, St. James, Hatcham, London, S.E.

FINSBURY DISPENSARY, Brewer-street, Goswell-road, London.—Resident Medical Officer. Annual appointment. Salary £100 per annum, and a furnished residence provided in the institution, with attendance, coals, and gas.

FLINTSHIRE DISPENSARY.—Resident House Surgeon. Salary £120 a year, with furnished house, rent and taxes free; also coal, light, water, and cleaning, or in lieu thereof £20 per annum. Applications to the Secretary, Board-room, Bagilt-street, Holywell, North Wales.

HULL ROYAL INFIRMARY.—Assistant House Surgeon for one year. Salary £60, with board and furnished apartments.

LINCOLN COUNTY HOSPITAL, Lincoln.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

LIVERPOOL STANLEY HOSPITAL.—Junior House Surgeon. Salary £70 per annum, with board, residence, and washing.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—House Physician. Salary £100 per annum, increasing £10 per annum, conditionally, with furnished apartments, board and washing.

OFFICE OF THE CROWN AGENTS FOR THE COLONIES, Downing street, London.—Medical Officer for service on the railway in course of construction in Lagos, West Africa; unmarried men preferred. Salary £40 per month, and arrangements for passage, &c., will be made.

PARISH OF ST. GILES, Camberwell.—Assistant Medical Officer for the Infirmary, Havil-street, Camberwell, and the Workhouse at Gordon-road, Peckham, also for relief duty at the Constance-road Workhouse of the Parish, for one year. Salary £50, with apartments, board, and washing. Applications to the Clerk to the Guardians, 23, Peckham-road, S.E.

ROYAL HOSPITAL FOR CHILDREN AND WOMEN, Waterloo-bridge-road, London, S.E.—Anæsthetist and Registrar.

ROYAL SEA BATHING INFIRMARY, Margate.—Resident Surgeon. Applications to the Secretary, R. S. B. Infirmary Offices, 30, Charing-cross, London.

SUNDERLAND AND NORTH DURHAM EYE INFIRMARY, Sunderland.—House Surgeon. Salary £100 per annum, out-door.

Births, Marriages, and Deaths.

BIRTHS.

MOUAT-BIGGS.—On Dec. 28th, 1897, at The Lypiatts, Cheltenham (her father's home), the wife of C. E. F. Mouat-Biggs, M.R.C.S., L.R.C.P., of Fauconberg-villas, Cheltenham, of a daughter.

ROSS.—On Dec 25th, 1897, at Rio Tinto, Spain, the wife of R. Russell Ross, M.B., C.M., of a daughter.

WILCOX.—On Dec. 28th, 1897, at Newlyn, Fleet, Hants, the wife of Henry Wilcox, M.B., of a daughter.

MARRIAGES.

D'OMBRAIN—GIBBINGS.—On Dec. 29th, 1897, at St. Saviour's Collegiate Church, Southwark, Ernest Arthur D'Ombrain, M.B., B.S., fifth son of Ed. D'Ombrain, Hauthorn, Victoria, Australia, to Adeline Maude, youngest daughter of H. Gibbings, of North Tawton, Devon.

LANGFORD—HAES.—On Jan. 4th, C. Harris Langford, M.B. Lond., M.R.C.S., L.R.C.P., of Weston-park, Crouch-end, to Mabel Anne, daughter of Henry Haes, of Bryntirion, Hornsey-lane, Highgate.

SAXBY—FURNISS.—On Jan. 4th, at the parish church, Knockholt, Kent, Thomas Edmondston Saxby, L.R.C.S., L.R.C.P.E., third son of the late Henry Linckmyer Saxby, M.D., of Baltasound, Shetland, to Julia Maude Furniss, fifth daughter of the late Frederick Furniss, Civil Engineer, of Drax, Yorkshire.

DEATHS.

DALY.—On Dec. 28th, 1897, at Hull, Owen Daly, M.D., J.P., F.R.C.P., in his 77th year.

TORNEY.—On Dec. 24th, 1897, suddenly, Thomas Torney, M.D. St. And., of Eblana-terrace, North Circular-road, Dublin, aged 78 years.

WALLIS.—On Dec. 30th, 1897, suddenly, at Ardwick Lodge, Hull, John A. Wallis, M.D., of Harrow, aged 52 years.

WATKIN-WILLIAMS.—On Dec. 31st, 1897, at The Green, Dunster, Somerset, Thornton Lanyon, the beloved child of Penrese Lanyon and Ellin Margaret Watkin-Williams, aged nearly seven months.

WATKINS.—On Dec. 30th, 1897, at Warrior-square, St. Leonards-on-Sea, Charles Stuart Watkins, M.R.C.S., aged 68 years.

YATE.—On Jan. 2nd, at Brighton, James Yate, M.R.C.S., aged 79 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Westminster (2 P.M.).

TUESDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.).

WEDNESDAY (12th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.).

THURSDAY (13th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2 30 P.M.).

FRIDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.).

SATURDAY (15th).—Royal Free (9 A.M. and 2 P.M.), Middlesex, (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (10th).—ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Leicester-square, W.C.).—8 P.M. Dr. J. E. Grevers (Amsterdam) will show a Series of Lantern Slides illustrating some Diseases of the Antrum and Cysts. Casual Communications: Mr. C. A. Clark: A Method of Inserting Gold into Artificial Teeth to Imitate Stopped Teeth.—Mr. H. Lloyd Williams: Excision of Necrosed Roots.

MEDICAL SOCIETY OF LONDON.—8.30 P.M. Sir William Broadbent, Bart., will open a Discussion on Adherent Pericardium.

TUESDAY (11th).—RÖNTGEN SOCIETY (Medical Society's Rooms, 11, Chandos-st., W.).—7.30 P.M. Council. 8 P.M. General Meeting. 8.30 P.M. Paper:—Mr. W. Webster: Practical Work with the Roentgen Rays.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—Adjourned Discussion on the Prevention of Enteric Fever. Dr. Corfield will open the Discussion.

WEDNESDAY (12th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—Demonstration of Clinical Cases.

LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—5 P.M. Annual General Meeting. Cases and Specimens will be shown by Prof. Kanthack (for Dr. P. Bergengrün), Mr. H. T. Butlin Mr. M. C. Baber, Mr. E. Wagget, Mr. W. G. Spencer, Dr. H. L. Lack, Mr. W. Wingrave, Dr. Tilley, Dr. W. Williams, Dr. A. Bronner, Mr. C. Symonds.

MEDICAL SOCIETY OF UNIVERSITY COLLEGE (London).—8.30 P.M. Dr. G. Sims Woodhead: Recent Researches on the Action of Alcohol.

THURSDAY (13th).—NEUROLOGICAL SOCIETY OF LONDON (11, Chandos-street, W.).—8.30 P.M. Mr. Victor Horsley: The Degree of Discharge of Different Nerve Centres. (Presidential Address.)

BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Mr. Mayo Robson: On Extra-Uterine Gestation. (President's Valedictory Address.) Dr. Elder (Nottingham) will show (1) Solid Ovarian Tumour; (2) Large Vesical Calculus; (3) A Six Week's Extra-Uterine Gestation.

FRIDAY (14th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Clinical Evening. The following cases will be shown:—Mr. W. G Spencer: A Case of Obliterative Arteritis affecting Three Limbs.—Dr. C. W. Chapman: A Case of Bradycardia with obstruction of the Inferior Vena Cava.—Dr. C. E. Beevor: A Case of Locomotor Ataxia with almost Universal Analgesia. And other cases. Patients in attendance at 8 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, ETC.

TUESDAY (11th).—HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM (15, Welbeck-street).—4.30 P.M. Dr. T. D. Savill: Tabes Dorsalis and other Disorders of the Gait in Diseases of the Nervous System.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3.30 P.M. Dr. Beevor: On Cerebral Localisation.

THURSDAY (13th).—CHARING-CROSS HOSPITAL.—4 P.M. Dr. Bruce: Cases in the Medical Wards.

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND, WHEN ACCOMPANIED BY BLOCKS, IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICE.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1897, which was completed with the issue of Dec. 25th, and the Title-page to the Volume, were given in THE LANCET of Jan. 1st.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1897 are now shortly. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

NEGROES AND VACCINATION.

A CORRESPONDENT in the West of America writes: "In the United States, as in Great Britain, there is much dislike among the lower classes to vaccination. This is especially the case among the coloured population of America. There appears to exist in the mind of the negro a perfect dread of vaccination. The laws enforcing vaccination are much more strictly adhered to in the States than in Great Britain and if necessary the operation is performed *nolens volens*. According to a New York paper Atalanta is at the present time the theatre of an active vaccination war The large negro population is fighting vaccination and compelling physicians to take around with them armed policemen. Hearing of a stylish negro wedding a short time ago the officers crept upon the house and kept the inmates corraled within while the physicians duly vaccinated the bride and all her attendant company. A somewhat similar scene recently took place in the Atalanta city court room which is always crowded with negroes. At a signal from the judge every door and window was guarded and all present were vaccinated. The efforts on the part of the imprisoned negroes to escape were determined and ludicrous, but there was a sufficient number of policemen on hand to control the crowd. In several instances the policemen who accompany the vaccinating corps have had to resort to violence to secure the enactment of the law. The negroes seem to hate vaccination worse than small-pox and the appearance of one of the little white points is enough to scatter an assemblage of them. In the house-to-house canvass which the medical men have been pursuing every subterfuge has been tried to elude vaccination. In some cases the negroes have remained away from home for weeks simply to evade the law."

"THE GUYOSCOPE."

EVERYBODY will regret to hear that the tenth issue of this clever little paper is to be its last. There is room for a little fun in the daily round of medical life, for a well-directed joke will often help to rectify an abuse. We do not see our way to adopt the editorial suggestion that we should devote a portion of our space frankly to joking but we reproduce one more jest from our contemporary's columns, and are sorry to think it is the last time we can thus levy contributions.

"A medical student was recently asked to take a Sunday-school class which, after some protest, he consented to do. He got on very well over the questioning, but when it came to parting out knowledge he began to get a little rocky. He managed Abraham, Isaac, and Jacob moderately well, but when he explained to the gaping kids that Esau was a man who so'd his after-birth for a bottle of potash the vicar ..... hinted to him in no measured terms that it was time he went home and had his tea."

"FALMOUTH DURING THE WINTER MONTHS."

To the Editors of THE LANCET.

SIRS,—In reply to the letter of "Q." in THE LANCET of Jan. 1st I beg to state that the answer to each of the questions is "Yes," but I may add that I think it might be desirable to bring saddle and bridle, though it certainly is not necessary.

I am, Sirs, yours faithfully,

Falmouth, Jan. 3rd, 1898. ALBERT F. FIELD, M.D. Aberd.

THE "USEBIUS" PINCE NEZ FRAME.

THIS invention seems to us to be one of practical utility. The sliding bar between the two lenses is of course not new, but in the Usebius frame the bar is fitted with a screw thread along which runs a small nut. When the lenses are pulled apart sufficiently to be comfortable the nut is screwed up so that the tension of the spring instead of exerting all its force upon the nose is partially expended on the nut. Thus the disagreeable pinching effects so often seen in the common pince nez frames are done away with. The makers are Messrs. Frederick Bateman and Co., 401, Strand, London.

THE FACILITIES OF THE DRUGGIST FOR DOING HARM.

To the Editors of THE LANCET.

SIRS,—Will you or some of your readers favour me with information in regard to the law which regulates the actions of druggists? Are they allowed (1) to prescribe any remedy whatever for any kind of disease or indisposition? If not, what is the penalty and how is that enforced? (2) Are they permitted to make up for Mr. A. prescriptions originally intended for Mr. B.? Are they even allowed to make up the same prescriptions a second or third time for the person for whom it was meant if that prescription has not been re-initialled by the physician who wrote it? If not, how are they to be prevented from infringing the law? I am, Sirs, yours faithfully,

Z.

THE CAUSES AND TREATMENT OF DEAFNESS.

To the Editors of THE LANCET.

SIRS,—I should be glad if any readers of THE LANCET would recommend some compact work or works on the causes and treatment of deafness. I am, Sirs, yours faithfully,

Dec. 25th, 1897. RUSTIC.

QUESTIONS UNDER THE LUNACY ACT.

To the Editors of THE LANCET.

SIRS,—An opportunity offers itself of my receiving a person of unsound mind into my house under my care. He is a certified lunatic. Is there any hindrance to my taking him or is there permission or licence to get or to pay for? I should be pleased if you could either give me the information I ask or refer me to where I can look into it. Also, what steps are necessary to take two or more cases? I may say I live in the country. House is semi-detached. Probably the information I ask for would be useful to many of your readers.

I am, Sirs, yours faithfully,

Dec. 13th, 1898. M.D

*** The following extract from "The Insane and the Law" (Churchill), by Pitt-Lewis, Smith, and Hawke, says at p. 115 that an insane person "may be placed to board in the house of some person who is willing to receive him in return for a stipulated periodical payment. It is, indeed, common for medical men and others to receive patients into their houses under some such arrangement. If the person who receives an insane person only receives one lunatic no licence is required by him (Lunacy Act, 1890, Section 315, Sub-section 2). Indeed, the Lunacy Commissioners have power (which, however, is in practice only very sparingly exercised) under 'special circum-

stances' to allow the same person to receive a second person without a licence (Lunacy Act, 1890, Section 46). But a single patient cannot, if he be taken for payment, be lawfully received and taken charge of without a proper reception order, statement, and medical certificates, such as are necessary for hospitals and licensed houses, being sent with him." With regard to further requirements, periodical reports, &c., we would advise our correspondent to refer either to the Lunacy Act, 1890, or to the Commissioners in Lunacy, 19, Whitehall-place, S.W.—ED. L.

WANTED A HOME.

To the Editors of THE LANCET.

SIRS,—Can any of your readers tell me of any residence where a good home could be given to a young lady, aged about twenty years, an orphan? Her late father was a naval officer. She has no means, but about £40 a year could be paid by her brother who is only a bank clerk. She is by no means insane, but for four or five days every month she is subject to ungovernable fits of temper and is quite uncontrollable. The rest of the time she is a nice girl and would make herself useful. It is undoubtedly neurotic, but is a sad case. During her attacks she wants a kind, firm hand over her. An answer through THE LANCET would be a real charity. I am, Sirs, yours faithfully,

Jan. 5th, 1898. COLONIAL.

"MR. HALL HAINS'S DEFENCE FUND."

To the Editors of THE LANCET.

SIRS,—Will you kindly insert the enclosed additional list of subscriptions to the above fund?—I am, Sirs, yours faithfully,

HERBERT CARRE-SMITH,
Hon. Secretary and Treasurer to the Fund.

3, Turnham-green-terrace, Chiswick, W., Jan. 4th, 1898.

	£	s.	d.
Amount previously acknowledged	76	2	6
Mr. Charles W. Chapman, M.D. Durh., M.R.C.P. Lond.	1	1	0
Mr. John S. Spence, M.D. Aberd.	1	0	0
Mr. T. Colcott Fox, M.B., F.R.C.P. Lond.	2	2	0
Mr. J. Batteson, L.R.C.P. Edin., M.R.C.S. Eng.	1	1	0
Mr. E. M. Swanwick, L.R.C.P. Lond., M.R.C.S. Eng.	1	1	0
Mr. George Brown, M.R.C.S. Eng.	1	1	0

ATAXIA, ALCOHOLIC AND OTHERWISE.

ON Jan. 3rd a cab-driver was summoned at Marlborough-street for being drunk while in charge of a cab. He was taken to Vine-street and charged there with drunkenness. In accordance with his request a medical man was sent for, who pronounced him to be not drunk but suffering from locomotor ataxy. Mr. de Rutzen of course discharged him. We cannot help thinking that anyone suffering from locomotor ataxy is quite unfit to be in charge of a cab for the visual disturbances and the muscular incoördination which accompany this disease are quite enough to render the sufferer incapable of driving properly.

"THE CHOICE OF A PIPE."

SINCE expressing our views on the choice of a pipe we have received various pipes for inspection. Messrs. William White and Son, of Gibson-street, Glasgow, send us what they call an absorbent pipe, and it is correctly so described since the bowl is constructed of special soft clay. The pipe is hook-shaped and affords cool smoking. Another pipe sent us is the "Duke" pipe (briar root), the feature in its construction being a perforation at the bottom of the bowl provided with a shot valve. The effect of this contrivance is that some air is drawn through the tobacco from below and thus a more or less dry condition of the lower layer of tobacco is preserved. It certainly favourably modifies the character of the smoke and the tobacco does not get saturated with oil at the finish. The rise and fall of the shot on drawing the smoke might be a source of irritation to those for whom there is nothing like a pipe of ordinary construction.

THE LATE FATAL ACCIDENT WITH ERYTHROL TETRANITRATE.

To the Editors of THE LANCET.

SIRS,—Having received numerous inquiries in respect to the fatal explosion which occurred at our Dartford works on Wednesday, the 15th ult., and so many erroneous versions having appeared in the public press, we think it well to state the simple facts of the case. The deceased, Mr. Lewis Jones (qualified chemist), was mixing a preparation of erythrol tetranitrate, a remedy which is now somewhat extensively prescribed by the medical profession in cardiac affections. The process consisted in diluting erythrol tetranitrate with finely powdered lactose by gently stirring the substances in a mortar; no pounding or grinding was required. The quantity of erythrol in the possession of the deceased was four ounces. Our process for dealing with this substance was adopted after a series of careful experiments and it has always been performed by competent chemists who knew the dangers of such nitrous compounds. The process has been carried out by us many times during the past eighteen months without the slightest mishap. It has been the rule of the chief of the department to caution those who handled it and the deceased received such a warning. The erythrol tetranitrate was kept under lock and key in a dark closet. The cause of the explosion we can only attribute to some extraordinary accident; unfortunately there was no witness to the actual carrying out of the operation by the deceased on this occasion. The force of the explosion was violent but local. We need hardly add that we are deeply pained by this sad occurrence which has resulted in the death of an employé who had gained our high esteem. We are, Sirs, yours very respectfully,

BURROUGHS, WELLCOME, AND CO.

Snow-hill-buildings, E.C., Dec. 21st, 1897.

B. C. D.—(1) At a rough estimate there is in London 1 medical man to 800 of the population; in the English counties 1 to 1500; in New Zealand 1 to 2300. (2) The knowledge necessary to obtain the Diploma of Public Health would be valuable; the possession of the degree would be of no particular service. (3) We strongly advise our correspondent to personally inspect any practice offered for sale unless the agent through whom it is purchased has power to refer him to responsible people on this side. (4) Living is cheaper because wants are fewer.

X. Z.—The wording of the agreement which our correspondent does not quote to us will almost certainly settle all three queries. If there is any doubt a solicitor should be asked to clear it up as the matter is one of legal interpretation of words, not one of medical custom.

Leno.—We do not recommend individual practitioners. The family medical man will suggest the name of the consultant, if any, whose opinion he would like to have.

Physician.—The proceeding obviously lends itself to abuse. If however it is done discreetly we do not see that any unwritten law of etiquette would be infringed.

Enquirer.—The General Medical Council's intentions cannot be exactly foretold. The notice appearing in THE LANCET should be acted upon at once.

Mr. C. A. Locke.—We do not know of the article referred to. It did not appear in THE LANCET.

M. D.'s letter raises important questions which must be considered before we print it.

Student will find a complete list in the Students' Number of THE LANCET.

S. T. is recommended to consult his solicitor.

L. S. A.—It is permitted and usual.

ERRATA.—In the Annus Medicus (THE LANCET, Dec. 25th, 1897) in the section of Dental Surgery reference was made to a paper by Mr. Allan Goadby. The name should have been Mr. Kenneth W. Goadby.—In a report of a meeting of the Midland Medical Society published on Jan. 1st, 1898, a paper is attributed to Dr. Thomas Nelson the author of which was Dr. Thomas Wilson.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 6th, 1898.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. in Shade.	Min. Temp.	Wet Bulb.	Dry Bulb	Remarks at 8.30 A.M.
Dec. 31	29·27	S.W.	0·09	67	52	45	45	47	Cloudy
Jan. 1	29·32	S.E.	...	53	47	45	45	46	Cloudy
,, 2	29·59	W.	...	61	48	43	43	44	Cloudy
,, 3	30·21	S.E.	...	56	49	39	39	40	Foggy
,, 4	30·22	WNW	0·07	53	51	26	38	39	Foggy
,, 5	29·98	S.W.	0·36	54	54	39	49	50	Raining
,, 6	29·89	W.	...	61	55	50	53	54	Overcast

During the week marked copies of the following newspapers have been received: *Walsall Advertiser, Southampton Times, Bradford Observer, South Wales Daily News, Scotsman, Times of India, Pioneer Mail, Eastern Morning News, Derbyshire Times, Glasgow Herald, Architect, Blackburn Standard, Devon Gazette, Newcastle Chronicle, Staffs Advertiser, Dartmouth Chronicle, Builder, Hereford Times, Sheffield Independent, Liverpool Daily Post, Manchester Courier, Birmingham Gazette, Sussex Daily News, Essex County Chronicle, Leicester Post, Leeds Mercury, Hampshire Telegraph, Bristol Mercury, Brighton Gazette, Le Temps, Sanitary Record, Mining Journal, City Press, Local Government Chronicle, Reading Mercury, Hertfordshire Mercury, Surrey Advertiser, Sanitary Journal, Local Government Journal, Cape Times, Electrical Review, Illustrated London News, Kilrush Health, Public Opinion, Dumfries Courier, Dorset Chronicle, Penrith Observer, Huddersfield Chronicle, Dundee Advertiser, Northern Miner, Horsham Times, Elgin Courant, Herts Reporter, University Correspondent, Yorkshire Post, Western Morning News, Liverpool Courier, Pembroke Dock Gazette, Somerset County Herald, World, Clifton Chronicle, West Middlesex Herald, Kettering Leader and Observer, Jersey Weekly Press, Greenock Herald, &c., &c.**

Communications, Letters, &c., have been received from—

A.—Messrs. C. Ash and Sons, Lond.; Messrs. Armour and Co., Lond.; Ancoats Hospital, Manchester, Secretary of; Dr. C. Allbutt, Cambridge.

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